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# **Industrial Policies in Europe**



## Introduction

Industrial policy is a controversial issue in Europe and in the whole world due to different reasons concerning both economic and legal topics; nevertheless this is a policy widespread all over the world both during times of acute crisis of the productive system and in periods of change and fast transformations. The relative weakness of the analysis involved in this policy doesn't represent neither an adequate support to the action of the governments, nor a satisfactory basis of study.

It is important not to forget that a significant part of policies oriented to knowledge, to private Research and innovation is largely based on instruments and forms of action closely related to industrial policy.

The aim of this work is to highlight the importance of a quantitative and independent analysis of business policies in Europe. This work is made as much as possible out of detailed and structured bases, that analyze the flow of expenditure of public policies and the weakness of the business sector that can represent the demand for public policy.

The chosen methodological approach considers industrial policy as an «atypical» market: the supply of policies measures made by different administrations is referred to the demand made by the enterprises. The policy maker tries to coordinate his intervention according to various objectives that have their own hierarchy.

In such a reference frame, the design of this kind of policy should start from the detected weakness in the private sector and from laying the foundation of a coherent intervention in quantitative terms (i.e. taking account of the amount of the interested businesses and of adequate resources necessary to the purposes and

forms of intervention) and in qualitative terms (technical forms, procedures, administrative costs): essentially the matter is to match supply and demand.

The policy maker plans the general interventions, but the real effectiveness of these policy depends on the administrative processes, the terms of access and on the technical forms of the subsidies (for example, the types of expenditures allowed, the relationship between different grants and more).

A comparative analysis would then develop through common steps:

- A study of the productive structure in all its different dimensional classes, in particular a study of the strong and weak points of the firms and especially of the way strategies for growth are carried out, such as those related to research and innovation processes and those related to the internationalization of production.

In theory, these investigations can be effectively carried out through direct firm surveys, submitting questionnaires. At this stage, next to an extensive survey in Italy, some test surveys have been conducted among three other countries: France, Germany and Spain.

- A deep analysis of the resources devoted to public policies. At this stage, available databases created by Eu (Dg Competition) offer consistent quantifications between the State Aid expenditures coped by all member countries. These information enables some initial calculations, but the data – currently provided by the governments of the involved countries – would deserve further analysis from case to case.

- A careful study of the practices implemented in different countries in order to capture and highlight the successful and unsuccessful experiences. The important point is to deepen the administrative processes and the implementation mechanisms in detail.

- A comparison of the evaluation studies related to these policies and conducted in different countries.

These notes are organized into three chapters. Chapter one provides an introduction to the relevant topics based on a sufficiently extensive reading of a large sample survey carried out in Italy. Chapter two extends the analysis to three other countries (France, Germany and Spain) thanks to the reading-out of International statistical

sources and data taken from a sample survey carried out in these pilot countries.

Chapter three shows a concise description of flows of aid to European firms.





## 1. Firms success factors

A first issue includes the way information can be extracted in order to have a sufficiently detailed picture of the public policy demand of firms. The methodology followed in Italy, and that afterwards has been experienced in three more countries through a preliminary study (France, Germany and Spain), is based on an extensive questionnaire submitted to a sample of enterprises in the industrial sector (we included the firms in service sectors strictly related to the production).

The aim of the pilot survey is to verify if producing a coherent system of surveys among several countries – with comparable results – can be possible, once the different characteristics of the productive and social fabric of these countries are given.

The approach tries to extract the companies demand for public support indirectly through the structural analysis of production system with an indication of the distinctive features that explain the success and the dynamic and, conversely, holding-down elements on which policy can act to loosen or remove of those that they represent.

The conviction behind this approach is that the internal heterogeneity of economic systems makes much more difficult to draw any relevant consideration to the economic policy based exclusively on the macroeconomic framework (for example the investment data, the dynamics of Value Added, Exports or factors productivity). It's always more important to deepen the theme of the microeconomic choices, their determinants and the critical factors involved.

In the case of Italy, for example, the interpretation derived by two consecutive sample surveys lead to a reading of the production system of some originality: in a particularly the importance of heterogeneity in the firms behaviour is more important in explaining firms performance than the traditional sectoral and dimensional breakdown.

Many firms choose to operate in less «competitive» conditions where the Research and Investment activities are, for example, less im-

portant but there are also lower growth opportunities, although sometimes these are associated with a short-term profitability. On the other hand, there is a certain number of subjects who choose to operate and compete in qualified area – often international markets – choosing (but also with the capacity) to be innovative and strongly dynamic.

Such a choice is made in all dimensional classes and in most areas: it is clear that this phenomenon is diffused in a greater percentage in large scale and in specific areas, but it is important to stress the presence in the non-intensive research sectors and in small or minimum size companies with significant figures. So the presence of firms among these dimensional classes that compete in international markets can also be relatively small, but it weights quantitatively and it has a qualitative relevance that cannot be neglected<sup>1</sup>.

This phenomenon can be read out in the data about international relations and activities, Research expenditures, innovative investments and give a coherent picture.

Moreover, the dynamism is much more than a simple reference either to innovative activities or to any choice of internationalization and it concerns a wide range of firm behaviors: the successful attempt to group and describe the production system – in accordance with a degree of dynamism represented by a set of variables related to productive and strategic market choices – provides some quantifications and specifications of interest.

Even in dynamic firms there are significant weaknesses (stronger in times of crisis) expressed by the financial weaknesses, by the way some qualifying functions perform and by the instability of important functions (especially R&D and Innovation, but also the same Internationalization) over the time.

For the most dynamic companies, credit is a crucial and clout issue: the significant amount of companies that doesn't either plan businesses for the future, or rather Innovate, or doesn't do Research, or doesn't realize investments for a long time and belongs to the most «stagnant» groups, largely corresponds to those who use little or not at all the bank credit.

<sup>1</sup> A deep examination of the topic can be found in Brancati 2010. The analysis of key factors of corporate behavior occurred through a sample pilot survey among three Eu countries (France, Spain, Germany). These are issues of great importance that require a great effort to know and study the phenomenon; the goal is to repeat the same investigations for more compaignie, with a greater statistical representation, and deepening the territorial and sectorial divisions (e.g. regional details).

Vice versa, almost all those that project themselves onto a long and medium perspective of growth use credit profusely. This point, that can seem an obvious concept but it is very interesting for quantification, exposes (the bravest companies) – especially in times of widespread difficulties – to more risks and makes the most dynamics subjects very vulnerable and exposed by increasing the responsibilities of the lending sector in its «real» functions.

The question (and the usefulness of surveys such as those proposed) concerns the quantifications. If «who competes» in open markets (if one may use such a synthetic expression) represents a minority of the total amount of firms, we have (and continue to have) a discrepancy between negative aggregate values and virtuous single aspects of the production.

This opens up two aspects: a cognitive and a policy issue.

On the cognitive level, there are many topics not sufficiently investigated. It is necessary to deepen, for example, which research is realized by small (companies), how it is made, which the specific problems and difficulties are, if there are information problems, specific problems of protection of rights since they mainly work with external parties, problems of coordination of functions and much more.

The internationalization issue also assumes very different profiles and it requires a different attitude, if you go by the idea of a traditional multinational company to phenomena involving small enterprises – often structured in networks with different features.

The purpose of the survey is to collect the original information about the structure and the specific characteristics of business demand, trying to catch possible areas of interest for economic policy, beyond the mere provision of aids. Therefore, it is necessary to match critical areas and single kind of companies that can be useful to direct at least a small part of the numerous and redundant national and regional instruments. Following this approach, we identified six relevant areas to the policy about which collect as much information and deepening as possible and the framework of basic information and the structure of employment.

*Market and internationalization.* This section is dedicated to understand the essential characteristics of the market, and with reference to its geographical features (local, regional, national, European or

non-European) as well as looking at the way the company presents itself, and the competitive advantages that the same is able to identify. The competitive advantages are discussed, albeit briefly, in its formation mechanisms, while the process of internationalization is studied both in its export expenditure component and in that of productive international cooperation.

We propose, therefore, the different characteristics of policy support asking the firms for a comment about the relevance with regard to the real needs of the operator, ending with a review of the effectiveness of the measures in place (if known).

*Competitive advantages and the influence of factors off the system (local system, infrastructures).* In many questions distributed in most parts of the questionnaire, we tried to face the incidence of the external environment on business dynamics. The questions has been necessarily simplified ascribing those to the relations between firms, the influence of infrastructure and their impact on competitiveness and turnover, or on the profitability and to the variables of policies usually used in this field.

*Dynamism and investment.* This is an extremely important part of the questionnaire. This part raises some representative issues about the business dynamism, from the revenue growth, to those investments made in accordance with the different objectives that entrepreneurs shoot for, but also to the way of perceiving the strategy that strengthen competitiveness. It should be noted that we tried to highlight the constraints on growth strategies: from the more typical, related to the financial and market outlook in the presence of economically viable projects of stocks to the knowledge support programs characterized by the introduction of significant innovations.

*Innovation and Research.* In the questionnaire we tried to investigate both the importance of corporate research and innovation activities and the strategies used (internal or external resources, relying on research or service centers) in order to observe the difficulties and problems encountered. In this as in other cases, we tried to highlight the critical issues that may be associated with measures of industrial policy dedicated to research and innovation.

*Finance and capitalization.* This area is frequently reported as a critical area of Italian SMES, especially in its capital base component. Specifically, in addition to all the problem highlighted, particularly in the proximity of the general application of the so-called «Basel 2»

rules, an attempt was made to investigate the availability and conditions for the use of new financial engineering instruments dedicated to face the structural businesses difficulties.

*Assessment of the public administration in industrial policy.* Although it is not an explicitly analysis oriented to the evaluation, some questions have been asked to evaluate the popularity and use of policies in place.

Beyond the obvious caution because of having chosen this methodology of analysis, it should be said again that is particularly difficult to pin down which is the deepening object in itself. In fact the questions are not always explicit with defined characteristics, but rather a wide area of needs, mostly related to issues of development and to the criticalities of the companies related directly or indirectly to the market imperfections or to those aspects related to the production of public goods, or even to the presence of externalities that can bring about positive effects for economic growth. In this area, however a prudent policy maker should think and choose the most suitable strategies.

### *The Italian experience: results of an extensive businesses survey*

The consideration about the Italian productive structure proposed below is based on two field surveys carried out in the third quarter 2008 and fourth quarter 2009. These are investigations of quantity and quality details. Overall more than 47,000 interviews with industrial and production services (including technical panel to just under 13,000 cases) between 2008 and 2009 have been collected. The entire survey has been conducted consistently with the need for scientific rigor and great technical care in execution.

Therefore such an extensive surveys allows extremely detailed analysis (by region, by size – all classes – and, in some areas, by sector or province), as well as allows microeconomics comparisons based also on the coupling with other databases (related either to the balance sheets of firms, or to other databases related to businesses worlds).

The questionnaire has been structured allowing us to understand the firms world in terms of structure, competitive advantages, R&D and Internationalization activities, strategies and limiting factors and

the policy demand. Finally, there are specific questions about the crisis and coping strategies.

The economic scenario of the two surveys is clearly not neutral: the first one takes place just before the Lehman Brothers bankruptcy and the second at the end of 2009, *annus horribilis*. In other words, the results collected could be an expression of exceptional situations. However, if the analysis aims to provide information on strategic issues, those that withstand even in times of acute crisis can be considered the result of profound choices and can help to better understand some structural differences existing between the operators.

Some evidences are suggested about the operative situation of the enterprises, the market and technology options and the internal structure of the system. The issue of heterogeneity in which we are interested doesn't concern only the usual structural aspects (for example regarding size or sector), but it highlights different behaviors in accordance with strategic choices made by the entrepreneurs, the choices seem possible – within certain limits – for a wide range of businesses.

Among the firm choices mentioned above, the first thing to consider, and which is crucial in the analysis, concerns the option of being internationalized (and of being innovative and of carrying out research). In particular, Internationalization seems to be one of entrepreneurship's basic factor (at least for the industrial component at the end of the first decade of the new century). Even in a year of sharp decline in world trade, the percentage of firms keeping relations with foreign countries rose from 14.1% in 2008 to 16.8% in 2009, with a general increase in all size classes except for medium size. Although the largest increase is associated with the attitude of larger companies (+12.3 percentage points), the aggregate figure reflects the greater relative weight of changes in micro enterprises (+2.8 percentage points). The latter point doesn't have to be underestimated. The fact, that the number of very small businesses that think in an international perspective increases in a significative measure, is a phenomenon that reflects a profound change of strategies and it shows an international scene no longer restricted to larger companies. Internationalization seems to be a real option for that part of the production system which wants to compete beyond sizes and sectors.

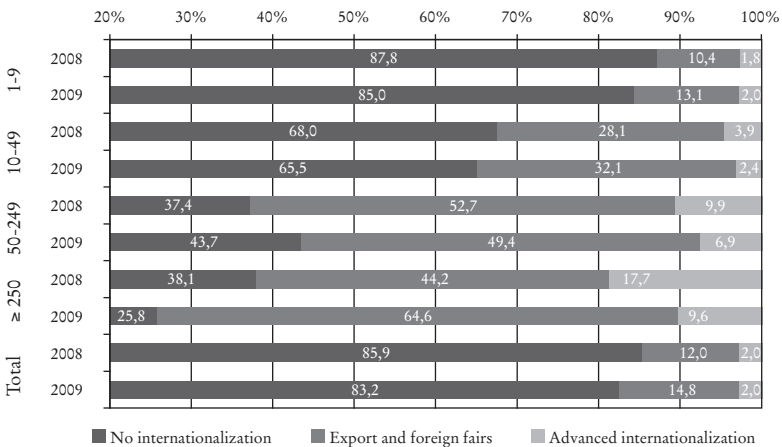
Of course, the so called modern choices (or rather those that work in the competitive world market with innovative activities and

R&D) are proportionately more common among larger firms, but the share of the small companies represent a phenomenon not to be overlooked and deserve more attention and careful analysis to gain an understanding of the elements of success and weaknesses. In particular, during 2009 a strong resistance of the small and micro enterprises took place. This phenomenon is also confirmed by several other variables that can be considered indicators of dynamism<sup>2</sup>.

Figure 1 shows the distribution of firms at different degrees of Internationalization. Overall, the tendency of firms to be internationalized seems to grow with the firm size. It should be emphasized, as mentioned, the significance of the presence in the international markets of micro companies and those up to 49 employees. The percentages may seem marginal, considering the fact that both are based on widely minority shares of companies of this size, and – even more – for the fact that you can assess the extent of this phenomenon on the basis of the obviously small companies turnover. It is worthwhile to

<sup>2</sup> Unless otherwise specified, in this chapter figures and tables refer to a sample survey conducted in 2009.

Figure 1. Degrees of Internationalization by size class (employees) in 2009, and total 2008 and 2009, percentages.



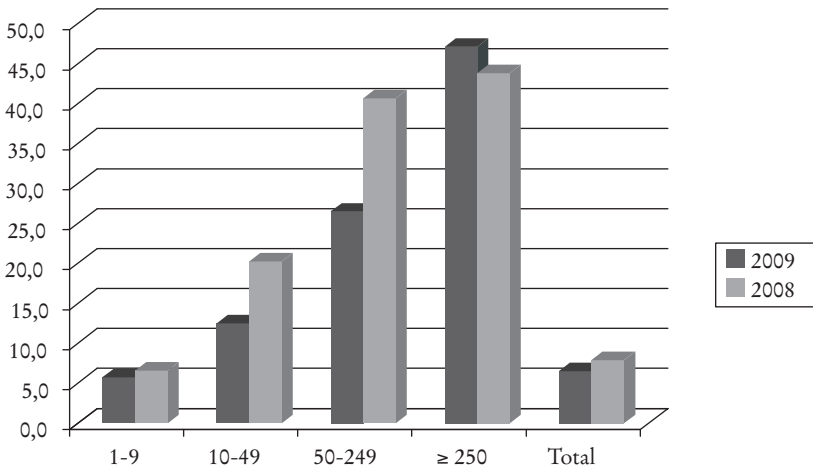
remember one thing: it concerns the great abundance of these classes' operators and the widespread presence of firm networks.

We have to take note of this «fact» and if it is possible we have to try to understand what kind of strength and weakness is necessary to develop a little-known phenomenon (in a policy perspective) or make its life easier.

The more one deepens the issue, the more the role of these enterprises (a small but critical portion of very small operators) is evident. The comparative analysis of the two surveys shows, in fact, an aggregate increase of the degree of average Internationalization due to the increase in the number of micro and small businesses carrying out exports operations on international markets.

Vice versa the percentage associated with the advanced Internationalization seems to be stable. The regional differentiation for Italy is in turn characterized by a lack of uniformity: the proportionately more internationalized regions are Veneto and Emilia Romagna, Tuscany. It should be more emphasized as performances and character of the regions are related to the behavior of micro and small firms: the behavior of large firms is not very different (if not for the type of output pro-

Figure 2. Firms engaged in R&D activities, 2008 and 2009, percentage.





duced) between regional system, while the Emilia Romagna average value in respect to Tuscany, for example, is driven almost entirely by the conduct of foreign relations by micro businesses. As emphasized by much of the literature, the greater international opening positively affects the ability of firms to innovate and carry out research (it is also influenced in a endogenous process). The situation with respect to the dynamism of the production entities of smaller size is confirmed if you look at the Research activity and how it is carried out.

In fact, the procedures followed to carry out research by micro enterprises deserves a special consideration. 5.8% of micro enterprises in 2009 set R&D programs, with an average expenditure dedicated to research (among those that perform R&D) of about 11% of turnover. The way research can carried out (research inside the company, cooperation with other companies, charge to others, relationships with universities and more) varies significantly. Especially, outsourcing is more often present in micro and small enterprises. On the whole, made 100 of the total expenditure on R&D, companies with 1-9 employees invest 66.1% of these resources to realize these functions outside. In particular, the most frequently used channels seem to be those involving relations with laboratories and external research centers (17.3%), with other firms (16.5%) and with universities (15.7% and a significant improvement compared to the trend of 2008). Also in this context it is clear, though not with a high entity, a presence of international relations for micro-enterprises. 4.4% of firms from 1 to 9 employees engaged in R&D opts for external collaborative relations of research with foreign subjects of various kinds (universities, companies or research centers).

The option to be present (in very different ways) in foreign markets is a determining and very strong criterion with regard to the combination of industry/size in explaining the weight of innovation in business activities.

Figure 3 summarizes the percentage of innovative companies according to their degree of Internationalization. During the 2008-2009 period, there was a general and systematic reduction of the flow of innovations in each size class. Nevertheless, it is interesting note that the decline in innovation is increasing with the increasing proximity to the market innovation: the most affected innovations category seemed to be the ones aiming at the major product innovations. In contrast, the innovations aiming at the reduction of the costs or the more gen-

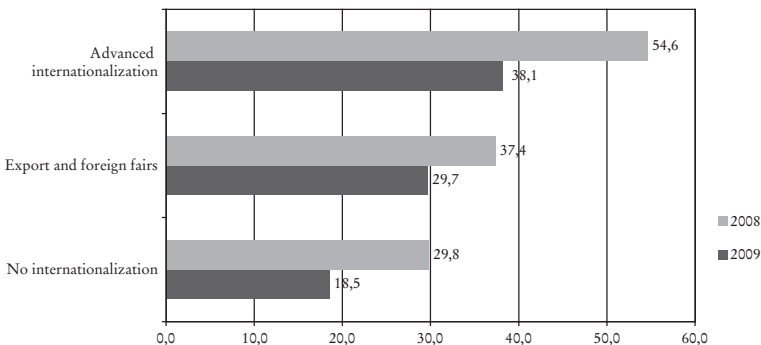
eral competitiveness improvement (organizational and management innovations) seemed to resist even in times of crisis.

Cross-checking data about Internationalization and Innovation the relationship between the degree of international opening and willingness to innovate emerges very clearly. In detail, there is a growing probability of innovation that goes hand in hand with the increase of the complexity of the types of activities in foreign markets. This phenomenon is unchanged (although with the obvious differences) for all size classes<sup>3</sup>.

As for Research and Development activity, it basically follows the same dynamic of Innovation: in a period of severe economic crisis, a general reduction in R&D activity took place. With the exception of large companies that relied on a greater financial strength, the remaining size classes, especially the middle classes reacted to the crisis thanks to a drastic reduction of their research projects and investment.

<sup>3</sup> The link between Internationalization and Research/Innovation is characterized by trademarks of endogeneity that make difficult to identify causal links. In this particular case we have to take note of the phenomenon, but estimates made using methods of matching between internationalized firms haven't offered the premises to believe that there might be a priority of the market choice in respect to the, so to say, technological one.

Figure 3. Firms that introduced at least one kind of innovation, by degree of Internationalization, 2008 and 2009, percentage.



What emerged so far confirms an aspect many times emphasized in the literature: the close interconnection of the three key factors of competition (Innovation, R&D and Internationalization).

It is important to highlight how Internationalization, Innovation and Research exhibit signs of weakness and instability (represented, among other things, by the high turnover of firms that decide to stop or start R&D activity from one year to another, for example. Since the phenomenon is not limited only to very small size, but spread to the entire system, the study of this turnover seems a very delicate and interesting question<sup>4</sup>.

The decision either to divest or to initiate new R&D activities, or related to different kinds of Innovations by companies may have different motivations. And in Internationalization it finds different causes for the productive sectors. Besides the expected effects related to the specific market prospects of individual companies the presence of financial constraints and the problems with the banks, but also the forms that these activities take are very relevant. For example in the field of innovations, the productive ones have been subjected to strong contractions with the market crisis, in the field of R&D the activities carried out through agreements with other companies are more unstable and in the area of Internationalization the agreements linked to the commercial area are the most affected.

First of all, it is useful to recall that Research and Innovation processes are discontinuous by nature, at least related to the individual programs started up. The second point is represented by the influence of the economic cycle: in times of slow-down and even more in times of crisis as profound as that experienced during the period of the survey, the effects on the postponement of work programs, the suspension of all those activities not able to produce returns over a reasonably short time are evident.

In this context, the decline of Innovation and R&D activities in 2009 seems a foregone conclusion, being that the production system faced a deep recession with an uncertain outcome. Once again it is worth to remember that 2009 has not been characterized only by a downturn in the markets, but has been a difficult year in many ways, mostly financial, that have put a strain on the national production system calling for ready reactions in terms of business strategies.

<sup>4</sup> The study is made possible by the presence of a panel of about 13,000 enterprises in both surveys.

Finally it should be remembered there are also structural factors that characterize companies (the fragility of the businesses and processes such as financial weakness, scale, networks, markets, types of R&D) as the reason of the gap. The last aspect to be underlined, that in some ways is the more interesting, involves strategic components.

In fact, the turnover we are talking about is made up of a large number of companies that break the activities in question but also by a number (minor, but significant) of subjects who, nevertheless decide to start new programs. On the one hand there are companies trying to react through Research and Innovation attempting to move the balance of the market and its competitive position, on the other companies look for new markets and new opportunities.

Both R&D and Innovation activities show a high instability: many companies do not confirm their commitment (4.3% for R&D and 16.1% for Innovation, it means a little bit more than half of those who in 2008 recorded such activities) and at the same time there is a consistent flow of new players (not operating in these areas in 2008 but active in 2009: 3.8% for R&D and 7.5% for Innovation) that still fail completely to offset the outflow.

A more careful study of the determinants of transitions for Research and Innovation confirms the some aspects already mentioned (weight of the fragility of corporate structure) and the role of different elements. Two in particular should be reported. On the one hand, the re-emergence of a direct relationship that ties the R&D to Innovation<sup>5</sup>: This character is an important element of stability. Second, the credit and the conditions of that are the essential fulcrum of innovative activities.

It should be noted the relative major stability of Internationalization strategies. Between 2008 and 2009 about 74% of companies that had relationships with other countries, at the beginning, liaised with them, while only 26% did not. The overall growth of the degree of in-

<sup>5</sup> The study of the determinants of persistence and discontinuities (those who leave and those who enter from scratch) in R&D and Innovation field between 2008 and 2009 took place through a structured methodology: in detail the transitions in the field of research were analyzed through a parametric approach to logistic regression, in which the «income» and «outputs» in R&D investments were estimated using predictors related to firm size, economic sector, the degree of international openness, the prospects of sales, the type of external relations in the field of research, as well as indicators of financial nature. The study of the determinants of transitions in innovative fields followed a methodological approach based on nonparametric Random Forest (Breiman 2001).

ternationalization had been generated by a massive inflow of new exporting subjects or who had different international relations.

The success or failure of smaller companies made its sense in the organization of local network of production facilities.

Throughout the years reading about the Italian economy and firms performances have often argued that belonging or not to territorial districts was a key factor in influencing positively business results and even the aggregate dynamics. If this was certainly true until the beginning of the new century, the signals that in the years '00 the «effect-district» has been greatly weakened are numerous (Foresti, Guelpa, Trent 2008).

The choice made in the Met survey we referred to was not to focus on a rigorous spatial definition (for example based on regional allocations available for the estimation of local systems), but to focus on the type of relationships that form the local network. The firms were then classified according to the degree of complexity of the «network»: the absence of a significant local network, the presence of a simple network (with mere trade and operative relations) and integration in an advanced network mode (subjects that also have «sophisticated» activities in common as cooperation, joint research projects, joint ventures, etc.) leaving the more unpredictable territorial definition, and entrusting the concept of «local» to the firm own definition.

Following a flexible spatial classification, the overall picture changes perspectives. Analyzing the determinants of the success of Italian companies, belonging or not to some kind of local networks becomes a key factor not only for small businesses, but also and especially for the medium ones. The network is by far the most stable factor among those tested and is a key factor (especially for advanced networks) to explain the innovative activities and research, internationalization (with strong regional differences), as well as productivity, value added growth and even profitability.

As for the stability of the «local loop» phenomenon, a national level 86.9% of companies that belonged to some form of advanced network in 2008 confirms this attitude in 2009, 8.8% regresses to softer forms of Intercompany relationships, while only 4.3% completely ceases connections between companies. The simple networks data is very interesting: the latter is characterized by a high stability of companies that maintain their status in the time (92.9%) showing output streams from the degree of membership to the network

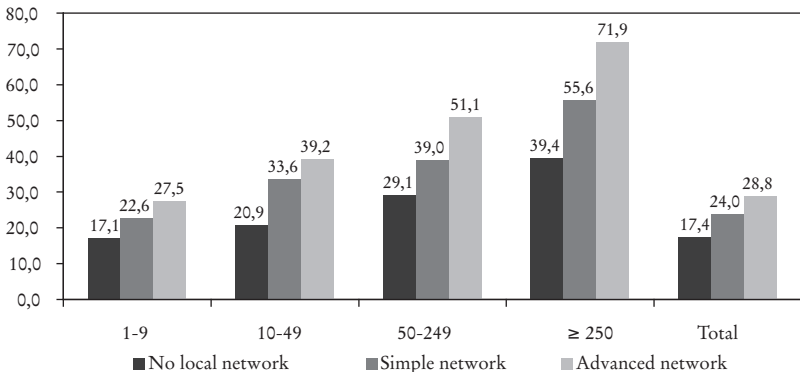
geared exclusively to increasing the level of complexity of the network (7.1%).

As evidence of the positive role of the network, figure 4 shows an increasing relationship between the propensity to Innovation and the degree of complexity of the network. The dependence between the probability to innovate and the type of inter-firm relationship is very close and grows as much as increases the complexity of the network for all size classes.

In summary, the effect of local networks it is important with respect to the probability to innovate, to realize research programs, to be internationalized and also with regard to growth perspectives. The intensity of the effects is increasing very fast, moving from one local network characterized only by trade exchanges to a more sophisticated joint made of common programs and a real partnership between companies.

One of the most interesting and useful elements to understand changes in 2009 is undoubtedly represented by the analysis of strategies adopted to respond to the economic crisis the high percentage of firms that did not adopt any kind of strategy in particular, at national level in fact 47.1% of firms opts for passive strategies. Such expectation attitudes are widespread among the most productive small and very small units (especially the less dynamic), with a strong decreasing

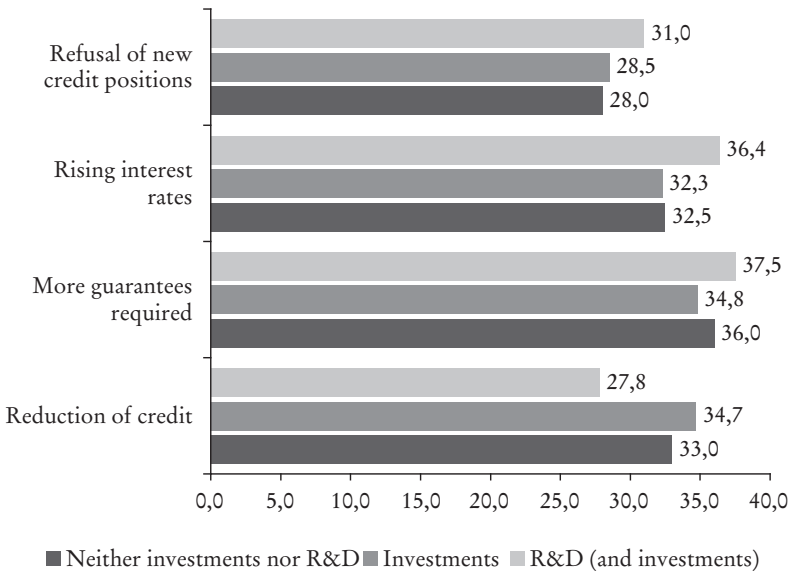
Figure 4. Local networks and innovations introduced, percentages of firms involved.



transition to large companies (ranging up to nearly 20 percentage points). The most common and active strategy is represented by the commitment to reduce costs, implemented mostly by companies of intermediate size.

There is a close relationship between the types of strategies adopted and the large number of employees in enterprises. The larger companies are characterized by different active strategies: 35.6% reacts by reducing costs, 46% chooses for commercial activities linked to new markets while 11.2% seeks alliances with other companies. The increase of investments in order to improve efficiency is instead a strategy put in place mostly by medium-sized production units (17.1%). The credit is a particularly critical area. Beyond the aggregate, the per-

Figure 5. Negative impact of the crisis on the relations with the banks. Firms by degree of dynamism (investment and R&D), percentage.



centage of firms indicating the presence of rationing is very high and is even higher for those companies involved in R&D programs associated with a high exposure (high level of leverage). In addition, the expected deterioration associated with the presentation of the 2009 budget gives rise to some concern.

Overall 32.4% of the enterprises records a deterioration in relations with financial institutions with a much higher value for micro and – surprisingly – for large companies (67.4%). Deepening the analysis concerning the degree of dynamism, there are stronger impacts for the most active firms in research. This phenomenon is a clear indication of the difficulties encountered by the most active firms (and therefore more exposed to financial risks), to raise the necessary funds at the bank to start their own investments.

All these results allow to draw an economic framework characterized by a very marked tightening of the access to credit and the conditions imposed by banks are increasingly hard, with a significant impact on growth strategies that can be summed to that previously reported about the influence of the credit conditions when companies decide to initiate or dispose innovative and research activities.

It is important to analyze the limiting factors to investments and R&D activities since the worsening of the general economic situation over last year has had important effects on growth strategies (the increase of those factors that limited the ability to achieve investment). By far the unfavorable prospects of the market and the difficulties in obtaining credit are the main obstacles to businesses<sup>6</sup>. The most disturbing aspect is that once again the most dynamic companies are those that have to face more difficulties. About 50% of national companies engaged in R&D activities records growth limitations because of the difficulty to get credit authorizations (difficulties that seem to fall in step with the reduction of the degree of dynamism). This evidence is clearly contrary to the hypothesis of a selection that maintains only the most innovative subjects.

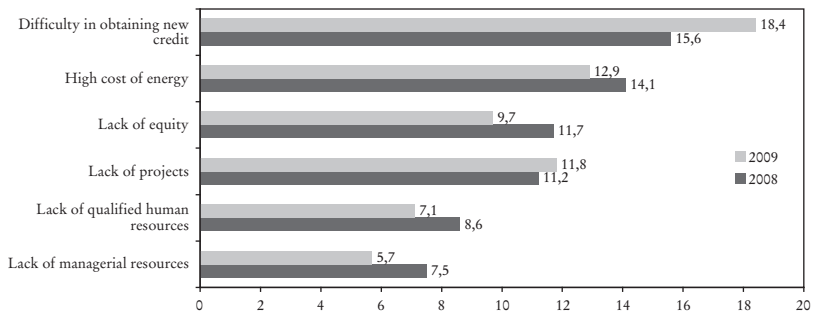
In light of the described scenario, it seems particularly serious. The most dynamic firms and striving for the future growth (investment and Research) are both those who have more difficulties in dealing

<sup>6</sup> The results refer to a variable expressed on ordinal scale 1-10: value 1 indicates that the unit tested doesn't represent a limiting factor to the investments, on the contrary 10 represents the maximum negative impact. The percentages given refer to values greater than or equal to 7.



with banks and the major limitations in making investments. In periods of crisis in which innovative activity is one of the mainsprings to set in motion virtuous processes of growth, the tightening of the relationship between banks and most dynamic companies is a limitation that could have lingering effects on growth.

Figure 6. Limiting factors to investments, 2008-2009, percentages.





## II. The European Framework: a pilot survey among three countries

### *The main features of the industrial sector*

In this chapter we offer some figures for comparative thoughts about the characteristic features of the productive systems of four of the major European economies.

Although in recent decades an intensification of globalization processes started, different structural joints are still evident.

We analyze in detail the main features related to the sectorial based composition of economies, the structures of the same size, and the competitiveness between firms as measured by the performances on international trade.

In a nutshell, we can say that Italy and Germany are two productive models that represent the highest industrial expression among the «historical» countries of the Eu, with a strong specialization in this area, but which are positioned at the extremes: the Italian economy is characterized by a high degree of fragmentation in the dimensional structure, small and very small firms carry a relative high weight, and have a sectorial specialization relatively concentrated in the fields of the so-called traditional sectors (with signs of no marginal changes in recent years, as we shall see later in this chapter); on the contrary, Germany is characterized by a dimensional structure strongly oriented towards large firms and a sectorial specialization more directed towards producing a higher rate of technology (mechanics and electronics, transport equipment, chemicals, etc.). Within these two «extremes» Spain and France have certain unique characteristics, but we can say that the Spanish model has some strong similarities to the Italian economic system (dimensional fragmentation and no marginal weight of traditional industries during last years) while the French case is certainly closer to the features of Germany, with a heavy weight of large firms and a sectorial approach that promotes modern sectors.

*The sectorial composition*

The industry weight over the whole economic system represents an average of over 1/3 within the four countries considered. However, significant differences appear.

As mentioned above, Germany and Italy are the countries that have a higher propensity for manufacturing: industry in strict meaning produces 26.1% of the total wealth in Germany and 21.4% in Italy. The added value of Spanish industrial sector accounts for 17.3% of the total wealth, while the value for France is equal to 14.1%.

However, France shows a relatively greater development in the field of productive services with a market share of 21.3% of total value added, contrary to what happens to Spain, which presents the lowest value for this sector equal to a rate of 14.9%. In Italy business services account for 16.3% of the economy, this value is lower than the percentage of Germany, equal to 19%.

The Spanish industry is characterized by a significant development in building: the added value created in the construction sector represents 11.8% of total value added, compared to much lower values of other countries, ie 6.3% in France, 6.1% to 4.1% in Italy and Germany.

In the commercial sector the less variability between the countries has been recorded, the share passes through a minimum of 10% in France to the maximum of 11.3% observed in Italy. On the contrary there is a strong heterogeneity in the catering industry, tourism and accommodation services; the aggregate is relatively marginal in Ger-

Table 1. Sectorial composition of Value Added, 2007, percentages.

	Germany	Italy	France	Spain
Agriculture, hunting and fishing	0,9	2,1	2,2	2,7
Industry	26,1	21,4	14,1	17,3
Constructions	4,1	6,1	6,3	11,8
Trade	10,1	11,3	10,0	10,5
Hotel and restaurants	1,7	3,8	2,4	7,2
Transport	5,7	7,4	6,4	6,8
Financial intermediation	4,0	5,2	4,7	5,3
Real estate brokerage	12,1	13,1	14,4	9,1
Other business services	13,3	8,9	14,9	8,1
Social and personal services	22,1	20,6	24,6	21,0

Source: Met on Oecd data (Oecd.stat).

many (1.7%), mostly developed in Italy with a share of domestic value added of 3.8%, but the greatest degree of development is observed in Spain with a rate of 7.2%.

The real estate brokerage contributes significantly to the economy within the four systems studied, with a weight that is relatively higher in France (14.4%) and Italy (13.1%), while Spain keeps the lowest share equal to 9.1%. Financial intermediation contributes to added value for less than half of the real estate services, with shares ranging from 4% in Germany to 5.3% in Spain.

The primary sector plays a marginal role in terms of value added, with the highest share value equal to 2.7% reached in Spain and the minimum of 0.9% in Germany. In contrast, social and personal services play a major and growing role, accounting for more than a fifth of total value added of the four countries considered. It records in detail a relatively bigger importance in France with a market share of 24.6%, followed by Germany with 22.1%, and then Spain and Italy respectively with 21 and 20.6%.

If we analyze the evolution of sectorial composition, since the '90s, there is an obvious outsourcing process of economy. Through the table below, which shows the changes in sectorial shares between 1991 and 2007, you can see how strongly the weight of business services, real estate, accommodation services and catering grew.

The businesses service sector, net of the related transport and communications, recorded an intense development in all countries analyzed, with a greater relative growth in Spain, where the proportion of variation in the time period under consideration is equal to + 44%, while it settles down to an average value of +30% in Germany (+33.7%), Italy (30.8%) and France (+27.5%). As mentioned above the weight of real estate services grew in a considerable manner: the contribution in the overall, national real estate value added increased by 40% in Italy and 36% in Germany and France, while in Spain the growth in terms of share value corresponded to 20.6%. The Spanish economic system is characterized in detail by the strong development of the building sector, whose share value grew of 38% between 1991 and 2007, while in Italy and France that component sector didn't change its relative weight, in contrast to Germany where the share fell by about one third.

The economy related to catering and tourism services increased significantly, in particular in Italy where the share of total national

value added increased of about a third and in Germany (+24%). In Spain, the country where this sector developed more, the growth share reached 15%, compared with the substantial stability of the French economy (+8,6%).

The relative importance of the manufacturing sector decreased significantly in the last two decades, however, the picture is highly diversified in each country. The share of the total national economy declined by over 30% in France and 27% in Spain, while in the two countries characterized by the greatest commitment in manufacturing, Germany and Italy, the decline was much smaller and equal respectively to -14.7 and -13.2%.

The primary sector decline in the four economies under consideration continued much more in the last two decades. The share represented by agriculture, fisheries and forestry has more than halved in Spain, fell by 57.8% in Italy, 62.4% in France and 69% in Germany.

The commercial sector performed particularly bad in Italy, where the share value of the national economy decreased of 20%; in France the relative weight of Commerce decreased of about 12%, while it remained stable in Spain (-4.7%) and Germany (-5.7%). The share of financial services further reduced, with the exception of Italy where there was a slight increase in terms of share of domestic value added. The share slumped particularly in Germany (-11.7%) and France (-9.9%), while the slump was more limited in Spain (-4.7%).

Table 2. Changes in the sectorial composition of Value Added, 1991-2007, index numbers 1991=100.

	Germany	Italy	France	Spain
Agriculture, hunting and fishing	69,0	57,8	62,4	44,8
Industry in narrow meaning	85,3	86,8	69,3	73,1
Constructions	67,6	98,5	95,1	138,0
Trade	94,3	80,4	88,2	95,3
Hotel and restaurants	124,0	133,5	108,6	115,3
Transport	96,9	111,1	103,3	105,0
Financial intermediation	88,3	105,1	90,1	95,3
Real estate brokerage	136,5	140,1	136,3	120,6
Other business services	133,7	130,8	127,5	143,9
Social and personal services	106,1	99,0	110,4	110,4

Source: Met on Oecd data (Oecd.stat).

Lastly, there was an economic growth linked to social and personal services, with the only exception of Italy. The relative weight increased of about 10% in France and Spain, and 6% in Germany, compared to a slight decrease observed in the Italian case.

### *The dimensional structure*

One more aspect we have to consider to understand the main characteristics of the production systems is certainly the one related to firm size. It is widely accepted the direct relationship between the size of the holdings and the chance to take the virtuous path of growth thanks to higher productivity levels and greater willingness to be active in key areas such as research, innovation and Internationalization.

This paragraph explores some analysis based on data updated to 2007 about the distribution of employees by size of enterprises, with particular reference to the manufacturing and business services (excluding financial and real estate services), which beside representing two important sectors of the whole economic system are also sectors made of a high degree of competition and opening towards international markets.

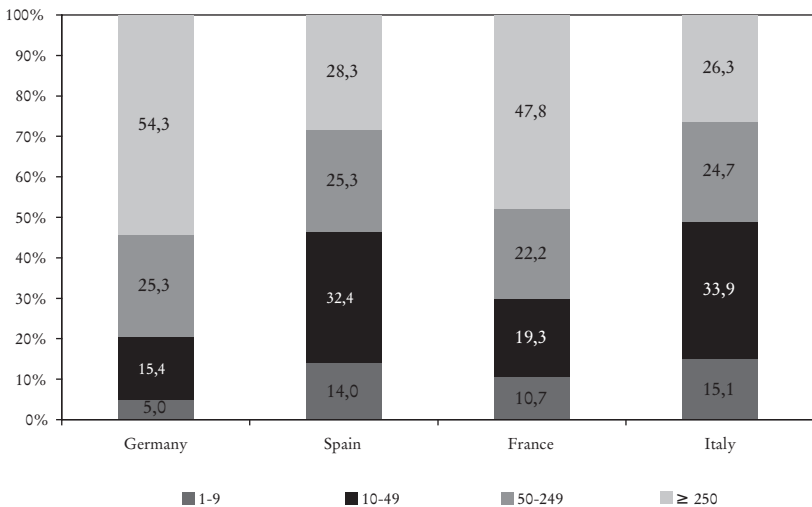
Figure 1 shows the distribution of employees by size of enterprises, related to the manufacturing sector. The two production models with the biggest manufacturing structures are characterized by two polar dimensional structures: Germany is notable for the relative weight of larger companies, where are employed 54.3% of the total number of employees, on the contrary in the biggest Italian companies there is only 26.3% of the workforce. The productive structure in the Italian case is pulverized with a share of employment in micro enterprises equal to 15.1% compared to 5% observed in the German model, 14% in Spain and 10.7% in the French system. Overall, companies with a staff of fewer than 50 units are in Italy 49% of total employees in the manufacturing sector, the highest percentage among the countries considered.

The Spanish model seems very similar to the Italian one (at least in terms of size): the market share is equal to 14% of employed workers in micro-enterprises, this percentage raises to 46.4% considering companies where at least 50 people are employed. The percentage related to big size companies is higher than the Italian case and it is equal to 28.3%.

The relative weight of «medium» companies (50-249 employees) shows the homogeneity within the four countries: the shares vary from a maximum of 25.3% in Germany to a minimum of 22,2% in France. The French model is relatively similar to the German one. The share of people employed in large firms is of about 47,8% while data related to companies with less than 50 employees is of 30% with a relatively high number of micro-enterprises (about twice that in Germany).

The medium dimensions in enterprises services division are drastically reduced. If we consider the framework relative to Germany, the country that shows a larger medium structure in this area, we can notice a high degree of fragmentation, the share of total number of employees in micro-enterprises is equal to 86%, while it is equal to 2.7% in enterprises with more than 50 employees. Italy is the country that records the most heterogeneous dimensional structure: the percentage of workers in micro-enterprises is equal to 96.6% (0.5% in businesses

Figure 1. Distribution of employees by size class of the firms, manufacturing, 2007, percentages.



Source: Met on Eurostat data.

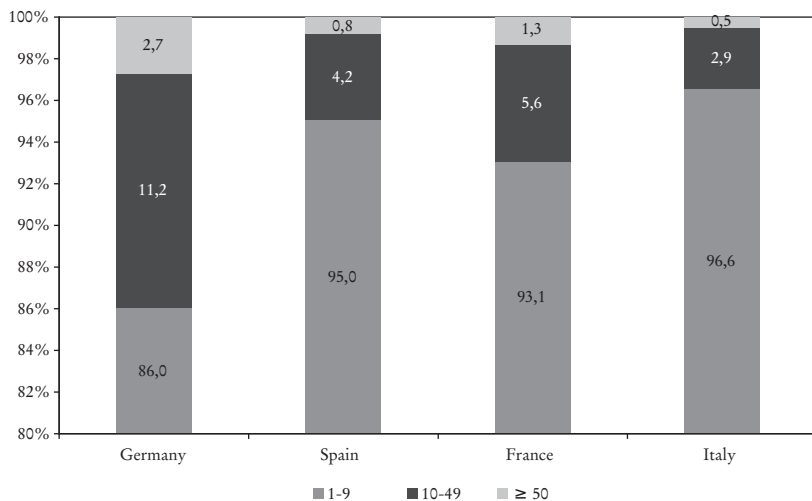


with more than 50 employees). France and Spain don't seem to be very far from the Italian model: the shares of employees in micro-enterprises correspond respectively to 93.1 and 95%, while the percentage related to the larger enterprises is equal to 1.3 and 0.8%.

Figure 3 shows trends over the 2002-2007 period of the apparent labor productivity (value added per worker) in manufacturing for different dimensional classifications.

Germany is the country with the highest average productivity, equal to around 67 000 euro per worker and its increase between 2002 and 2007 amounted to 22.3%, followed by France with a 61.8% value and a percentage variation of 20%. Spain and Italy are famous for a much lower labor productivity: in Spain the value added per employee is equal to 53 500 Euros, however, it is the country with the best development during the period under consideration, with a growth of 28.9%; the average productivity in Italy is by far the lowest, amount-

Figure 2. Distribution of employees by size class of the firms, services (real state and financial services excluded), 2007, percentage.



Source: Met on Eurostat data.

ing to 50 700 Euros and the percentage change is particularly unfortunate from 2002 to 2007 (+19.3%).

Italian data are largely attributable to the low labor productivity in micro enterprises, which is by far the lowest among the four member countries (€27,800), as well as that recorded in large companies where the value added per employee is equal to €72 600, compared to 82.2 observed among German companies. The scenario changes radically if we consider the medium size groups, starting from the threshold of 10 employees, in that case, the apparent productivity of labor is systematically higher than that recorded in Germany with the highest average productivity in absolute among the four countries considered, in the range of «medium» size firms (50-249 employees).

The German leadership in terms of average labor productivity can be explained thanks to the average higher values in all size classes, with the data particularly relevant for large firms for which there is a 2007 value added per employee of about €82 000c recording a particularly strong growth from 2005. The employment component of the large German companies is not the most productive, the primacy for this size class is recorded in Spain, with a value of over €85 000 per employee, with a very favorable development since 2003.

However, if we consider the other dimensional categories, Spain is the country with the lowest labor productivity, with the exception for the class made of 1-9 workers for which, thanks to a relatively high rate of growth in the last three years, Spanish companies overtook Italian ones.

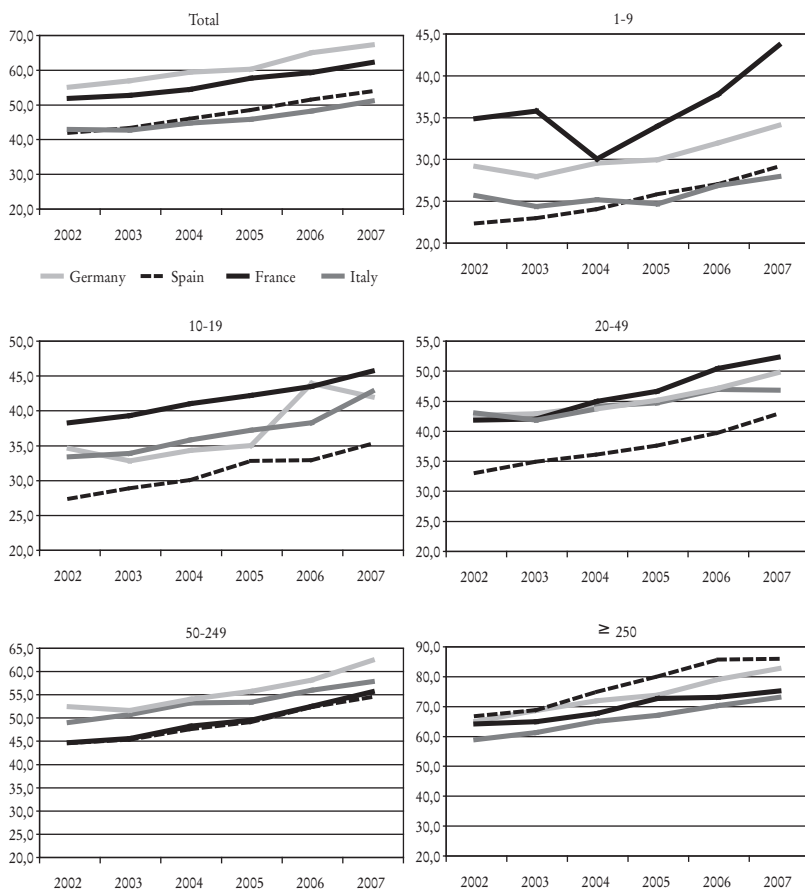
The high overall average productivity observed among French companies is attributable to the firms with less than 50 employees. France in fact has a leading position both in micro enterprises (1-9 employees) and in small (10-49) ones, with a very high average growth between 2002 and 2007, second only to the one Spain recorded in the same size group. By contrast, the apparent productivity of labor is much lower among French companies of medium size (50-249 employees), and relatively steady in large companies but only in recent years.

### *Performance and export specialization*

Among the deepening made, the one related to the analysis of positioning in international markets naturally assumes a particular importance. In detail, we present the results concerning the shares of

world trade of goods, with the specific aim to measure the competitive capabilities of firms in international markets, and analysis on the sectoral composition of exports.

Figure 3. Apparent labour productivity, value added per employee, by size class of firms, thousands of euro.



Source: Met on Eurostat data.

The period under consideration allows us to study the export performances within the overall framework characterized by deep changes in the scenario where businesses operate. These are very clear and well known questions and issues, due to at least three aspects: the access to the euro, which of course produced many effects in the four countries considered, but that still represented a structural change of high-impact, the intensification of the processes linked to globalization and the pushing entry of the so-called Bric (Brazil, Russia, India and China) in world trade, resulting in striking down quotas implemented by the advanced economies, and finally the development of information technology, which made possible significant changes in productive relationships and opened new channels for the internationalization processes.

Within this general scenario the shares of exports of the four countries studied show a clear downward trend between 1991 and 2008 (figure 4), with the only exception of Spain, which is also the country with the lowest international degree of opening.

Germany is the only country that managed to increase its competitiveness by increasing the share of world trade, from 8.8% in 2000 to 9.3% in 2008, with a particularly favorable trend in the period 2000-2003. At the other extreme we can place France that does not seem to be able to stop or significantly slow down the decline started in the previous years: the share has indeed increased from 6.6% in 1991 to 4.7% in 2001 up to 3.8% last year.

Spain held steady at the same level of 2000 (from 9 to 1.8%), confirming, in general, a modest weight on world trade at least with regard to industry division in a strict meaning. Despite the striking growth of sales in emerging countries, the share of world trade of goods by Italian producers fell a little bit down adopting performances that are lower only than Germany. The trend of Italian industry throughout the period is very similar to that experienced by German firms, with the exception of the years 2001-2002.

Table 3 explores the sectorial composition of exports of the four countries, since 1991, followed by two photographs dated back to 2000 and 2008.

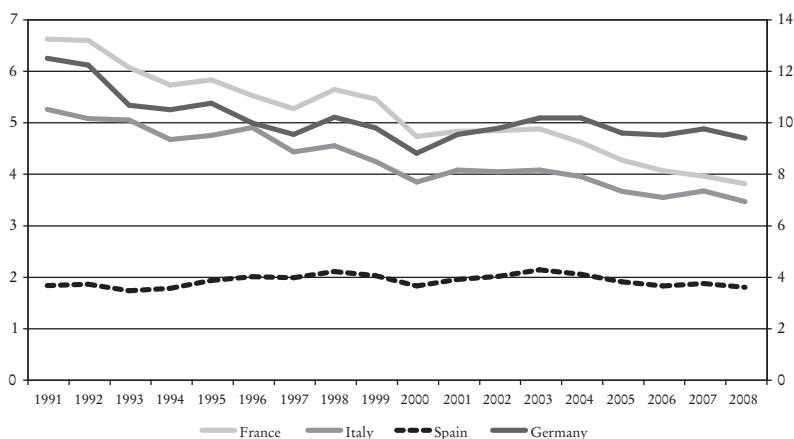
Data confirm the main specializations, with some evidence of interest related principally to changes since the early '00.

The German model is based on some established leadership in chemistry, mechanic, electronics engineering, and transport produc-

tion. France is characterized by a composition of exports concentrated in chemistry, electronics, transport production, in addition to food. The presence of Italian companies on international markets is traditionally based on the so-called Made in Italy products: clothing and housing sector and other craft sectors, but with a gradual shift in favor of mechanical engineering. Spanish exports are specialized in the means of transport and in the food chain with an important growth in the chemistry sector.

The entry of Briccountries generated the collapse of some productions, especially with regard to clothing products and some electronic divisions (radio and television, computers, office equipment). Of course in these areas, there has been an intense process of relocation and investment made by economically advanced countries towards developing countries that have won against those international markets specialized in these kind of productions. On the contrary it is interesting to note that food industry conserved its ability to penetrate foreign markets.

Figure 4. Shares in world trade of goods, exports 1991-2008, percentages (Germany on the right scale).



Source: Met on Oecd data (Oecd.stat).

Others productive areas increased its relative weight: in particular chemistry sector, and specifically pharmacology, base metals (attributable mostly to the price increase), mechanics and precision electronics.

These evidence are common to the four countries under consideration. Naturally, there are some specific features. The positive performances in Germany are based on the competitiveness displayed in pharmaceuticals, mechanics, precision electronics and in the production of vehicles. The French model enforced the chemical-pharmaceutical division and the means of transportation specialization thanks to aerospace division. In Italy the decline of some traditional productions has been accompanied by significant increases in mechanical engineering, electrical machinery, in addition to the metalworking industry; totally, the last three productions represented 35.6% of total exports in 2008, becoming the largest segment of the Italian special-

Table 3. Sectoral specialization of exports, 1991, 2000, 2008, percentage on total.

	Germany			France			Italy			Spain		
	1991	2000	2008	1991	2000	2008	1991	2000	2008	1991	2000	2008
Food	4,9	4,1	4,7	11,6	9,4	9,5	5,3	5,2	5,9	9,5	8,8	10,2
Textile and clothing	5,9	4,0	2,9	6,5	5,2	4,7	18,4	15,9	11,8	7,3	7,0	6,2
Chemistry	13,1	13,1	14,9	14,1	15,2	17,3	6,5	8,9	9,3	9,0	10,3	13,5
Rubber-plastic	3,4	3,4	3,6	3,2	3,0	3,3	3,4	3,7	3,6	3,1	3,6	3,5
Other non-metallic mineral	1,7	1,4	1,3	2,1	1,6	1,3	4,1	3,7	2,7	3,6	3,6	3,0
Basic metals	5,8	4,9	6,0	6,5	4,8	6,1	4,5	4,2	7,6	7,5	5,3	8,0
Metalworking	3,6	3,3	3,6	2,9	2,5	2,8	4,2	4,1	4,8	3,1	3,2	3,5
Mechanics	18,0	15,4	16,9	9,5	8,8	10,1	20,3	19,9	21,9	8,5	7,3	7,2
Electrical machinery and electronic equipment	14,7	18,9	15,1	13,6	18,8	13,5	10,2	10,5	8,9	8,9	10,5	8,6
Manufacture of vehicles	21,4	24,2	22,9	21,5	22,6	21,9	11,4	12,0	11,7	29,8	30,0	24,6
Other manufacturing industries	2,3	1,9	2,1	2,2	2,0	1,9	6,8	6,9	4,7	2,3	2,5	1,8
Other non man.	5,2	5,3	6	6,3	6,2	7,6	4,7	5	6,8	7,3	7,9	9,9

ization. Spain suffered for the most intense changes in the food chain, pharmacy, basic metals and electrical machinery.

### *The survey results*

The international survey covered a sample of 2400 firms, evenly distributed among the three countries: Spain, Germany and France. The sampling plan provides a certain level of statistical representation, within each nation, by size and sectorial macro area. The dimensional classes considered are three: micro enterprises, with less than 10 employees, small businesses, with a number of employees between 10 and 49, and, finally, medium and large production units, where the employees are 50 or more. With regard to sector allocation, we considered two main divisions: the industrial one in strict meaning (excluding the activities of construction) and the sector of the businesses services, net of financial assets and real estate.

The questionnaire has been structured to the purpose of capturing the business world in terms of structure, behaviour and strategies (with particular reference to the activities taken in the field of re-

Table 4. Sample size, by country, employees class and sectorial allocation.

		Manufacturing	Services	Total
France	1-9 employees	88	176	264
	10-49	90	176	266
	> than 50 employees	90	180	270
	Total	268	532	800
Germany	1-9 employees	66	198	264
	10-49	67	198	265
	> than 50 employees	70	201	271
	Total	203	597	800
Spain	1-9 employees	66	198	264
	10-49	66	198	264
	> than 50 employees	66	206	272
	Total	198	602	800
Total	1-9 employees	220	572	792
	10-49	223	572	795
	> than 50 employees	226	587	813
	Total	669	1731	2400

search, innovation and internationalization) as well as factors limiting the growth and demand for policy. Finally, there are some specific questions about crisis and coping strategies.

The main issue we are interested in doesn't involve the usual structural practices (e.g. size and/or sector), but it rather aim at identifying different behavior on the base of strategic choices of entrepreneurs, choices that seem possible – within certain limits – for a wide range of types of businesses.

The results – shown below – compare the data of the three countries analyzed (France, Germany and Spain) as well as show the reference to the values resulting from the survey conducted in Italy. It's important to underline that the two surveys have different levels of statistical representation – because of the different sample design and of the greater number of sample group carried out in Italy – and therefore the results are not strictly comparable, due to the fact that were carried out about a year later, in a period characterized by significant changes due to the crisis. So taking into account an interpretative caution, however, we refer the results of Italy to enrich the reading frame.

Among the fundamental choices, the possibility to be active in foreign markets (and then to be innovative and to carry out Research) seems particularly important. In particular Internationalization seems to be one of the basic factors of entrepreneurship, so how it has been widely shown in the previous chapters of the present work.

Figure 5 shows a comparison between different countries concerning the degree of internationalization in the manufacturing sector for firm size.

The results can describe two different business models: on the one hand Germany and France show a higher opening degree between the large businesses (over 50 employees), on the other Spain and Italy record a significant international presence also for the very small firms. Within this framework, there are several differences between countries. The Italian model is more developed in export activities, while the most developed way of Internationalization (from the commercial agreement to the ones focusing on research activities, from joint-ventures to the foreign direct investments and relocation of production phases) are less common. If we look at the enterprises with less than 50 employees in Italy it is possible to record the highest degree of opening between the countries involved, with Spain following this rating with slightly lower values.



On the opposite side, Germany points out the maximum international opening with more than 50 employees, while it would seem that the international processes are relatively marginal among the very small firms. France seems to follow the German trend, with the only exception of micro enterprises, where there is a relatively high degree of opening, in line with the Spanish percentage. The phenomenon of micro-multinational, especially in Spain and France (as well as in some Italian regions how described in the previous chapters) it is a very interesting aspect that would deserve further study in specific surveys.

Overall, in France, Germany and Spain less than one out of ten firms carries out research activities, with a relatively higher spread in the industrial division, where the share of enterprises active in this field is equal to 11.9% (7.5% in services). France is the country that shows the strongest commitment: the percentage of enterprises involved in R&D activity is equal to 21%, which is far superior to that of Germany (6.3%) and Spain (9.1%); Italy confirms a less extent of R&D activities. The positive performance of the French productive activities is particularly positive due to the size of micro and small companies in both industry divisions considered; the sectorial compo-

Figure 5. Internationalization by size class, industry, percentages.



sition of French economy, oriented mostly to very technological productions, gives a relevant but not exhaustive explanation of the particular dynamism of micro and small firms in research...

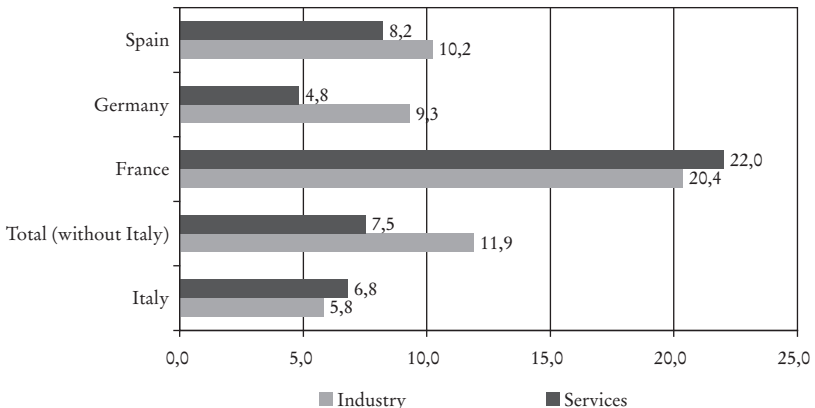
In France, the percentage of small and medium-sized enterprises (1-9 employees and 10-49 employees) that are involved in R&D activities is the highest among those countries taken into consideration. Spain has a rather marked dynamism in R&D in the intermediate dimensional class. In Germany R&D is carried out pervasively by large companies ( $\geq 50$  employees) confirming that in that country this industrial model works thanks to large companies. Italy, then, shows a not very common R&D activity concerning all dimensional classes and confirming data in figure 6.

It is interesting to analyze the way research works: if it is realized either thanks to internal resources or in outsourcing. Figure 7 shows interesting results. France, that shows a very widespread dynamism in R&D (in small companies), is the country that uses more than any other external activities. The total share of enterprises with R&D activities in Germany and France is quite similar (even if the share of enterprises with more than 50 employees is higher in Germany). Italy is bringing up among the countries into consideration; this is a particularly burdensome aspect and also provides an interpretation of the

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Figure 6. Firms involved in R&D activities, by sector, percentages.

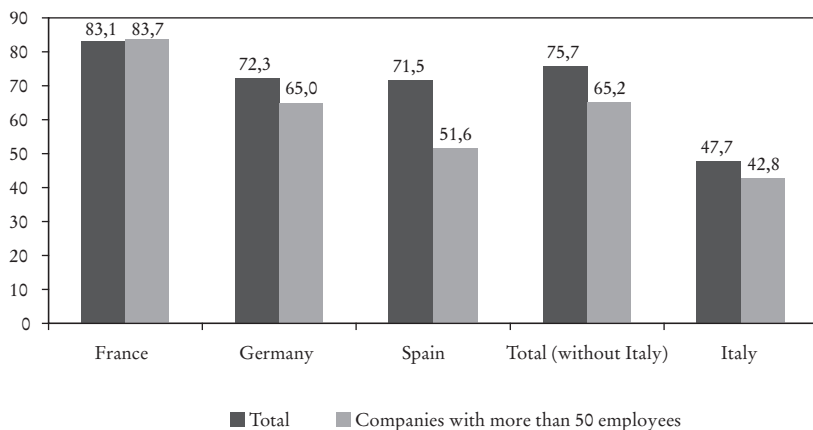
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low uptake of research in Italy. The propensity to outsource these activities is inversely proportional to the increase of the businesses size: supporting the development of the R&S collaborative networks would have a particular important effect in Italy where the productive system is characterized by a high fragmentation.

The aggregate data related to the countries show that the external R&D activity carried out mainly refers to the laboratories and national centres (38.4% of the total). The others methods in question, Universities, fellow businesses, and the relations with foreign countries are recording percentages equal to about 30%. Within this framework there is an intense variability by dimensional class and by country of reference. In particular, among micro enterprises it is possible to observe different ways in carrying out external research activities. In Spain and Germany the most traditional channels linked to relations with laboratories and research centres (Spain), Universities (Germany) predominate, while in France where the commitment in R&D field by micro enterprises is higher, there is a very widespread presence of enterprises networks.

Figure 7. Firms engaged in R&D activities utilising external relations (100 = total number of firms with R&D).



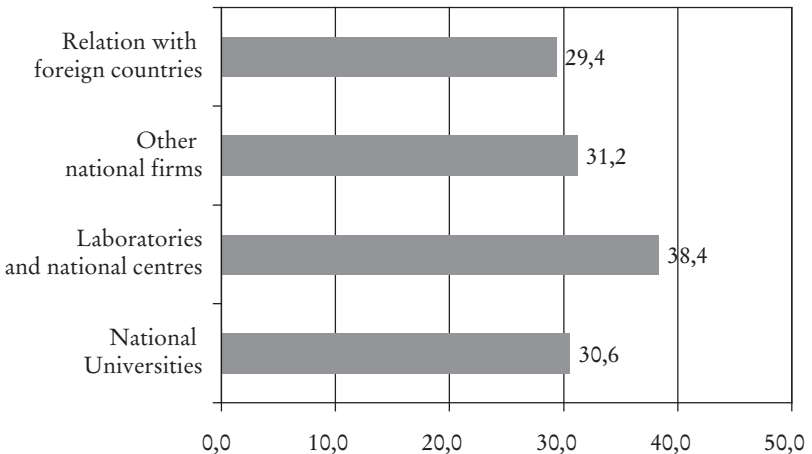
Analysing the diffusion of innovations, in the sample of French, German, Spanish companies, it is possible to observe that 23% of firms introduced at least a innovation in the last three years. The services enterprises result relatively more innovative, with a value of 25.1% compared to 20.4% in manufacturing. Concerning the break down of each country, Spain is characterized by the most innovative trend, 28.7% of enterprises introduced innovations (29.1% in industry), while France is the country with the lowest value, equal to 18.6% (17.9%) slightly lower than the figure for Germany (19.6%, industry 12%).

One of the main keys of interpretation have to be found in the different models and structures of the productive fabric of the three countries: Spain and Germany are the two extremes. In the first one, there is a greater dynamism within smaller enterprises, with a percentage of innovative industrial firms of 24.2% in the range of 1-9 employees and of 40.9% in the intermediate range. On the contrary German production keeps a relevant dynamism within the division of the larger enterprises, where the share of innovative enterprises is equal to

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Figure 8. Forms of external relations aiming at R&D activities in France, Germany and Spain, Industry, percentages.

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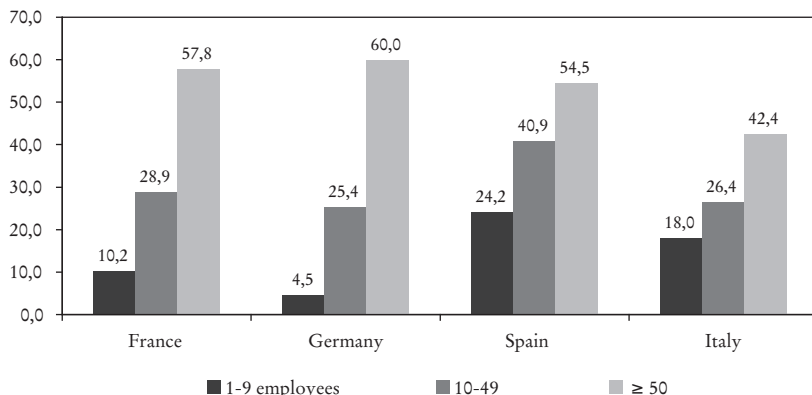
about 60%, while the diffusion of innovative pattern seems relatively marginal among micro enterprises (4.5%). France seems to lie in an intermediate position, it records a good performance of large firms (57.8%) and a framework for smaller companies that is relatively better than the one reported for Germany. The result of Italy records a high propensity for innovation in micro and small firms, confirming the widespread interpretation of a model of innovation that is not based on research<sup>1</sup>.

Also in the field of innovation, there is a relatively homogeneous framework between large enterprises: the differences in behaviour between different countries tend to flatten over the threshold of 50 employees, with the exception of Italy, while there is a strong variability of strategies used among micro and small enterprises (according to evidences discovered thanks to a wide survey carried out in Italy).

Figure 10 shows a detailed framework by type of innovation introduced, with reference to those interviews conducted in France, Germany and Spain. There is a greater spread of organizational and/or management innovations, that involve about 14% of the interviewed

<sup>1</sup> Some econometric estimates made on the sample of italian companies show how research ensures a character of strenght and stability to the innovative pattern (Brancati 2010).

Figure 9. Firms that introduced at least one innovation during the last three years, by size class, Industry, percentage.



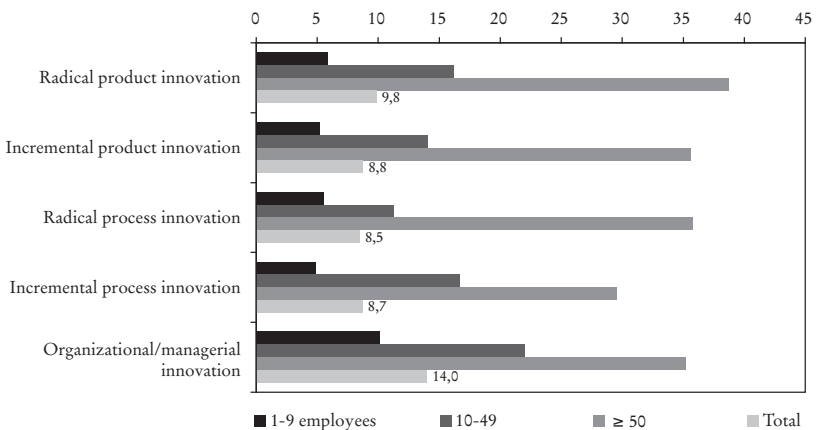
enterprises. Then the radical innovations of products offered to 9.8% of the companies while other kinds of innovations (of secondary products, of main and secondary processes), points out a percentage that varies from 8.5% to 8.8%. From a dimensional point of view it is worthwhile to report the data of large firms for which it is recorded the primacy of the main innovations of product (38.7%) among the ways of innovations, and in general a greater homogeneity in between the percentages of different types.

A further element of great importance concerns the behaviour of micro and small enterprises among the three countries globally: as we highlighted above, the most modern strategies (innovation, internationalization, research, etc.) keep existing in the lower dimensional range, with a degree of heterogeneity very high. The willingness to compete and to grow, the capability of being active also in strategic areas as R&D and the presence outside the country, are discriminating the elements of enterprises success, much more that what happens in higher dimensional classes, where the framework that emerges is characterized by a certain homogeneity of behaviour. It is pretty

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Figure 10. Type of innovations by size class in France, Germany and Spain. Industry, percentages.

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amazing to discover that in France in the 1-9 employees range, one out of ten companies is active in research, while in Germany, the percentage is lower than 5%; as well as in Spain (and Italy) there is a higher widespread of innovations in micro enterprises even if in these countries there are more difficulties in research investments. The sectorial and dimensional compositions provide a framework that cannot fully explain the phenomenon. Many explanations, for example related to the greater dynamism found in small enterprises in France, seem to go beyond of these structural aspects.

The micro and small enterprises dynamism is often associated with a fragility that has been stressed due to the crisis and that look at the financial component as one of the several critical areas. The commitment of these enterprises in «key» areas is often characterized by more ways of being active than what happens in larger businesses. The research is a clear example of the topic, as mentioned above, micro and small enterprises use mostly external activities, facing difficulties and specific elements of weakness that deserve more in-depth analysis through more extensive surveys able to catch the territorial and sectorial structures, as well as diachronic analysis which would follow the different evolutions.

Check-crossing data concerning Internationalization and Innovation show very clearly the relationship between the degree of International opening and the willingness to innovate. In detail there is a growing probability of innovation while the complexity of the kind of activities in foreign markets increases. This phenomenon is unchanged (although the obvious differences) for all countries considered, with regard to sectorial issues a more nuanced difference in behaviour between business services has to be observed.

The figure below shows the close link between innovation, R&D and Internationalization, analyzing the behaviour of industrial enterprises of the three countries (Germany, France and Spain) considered together... The percentage of firms that introduced at least one form of innovation passes from 15.2% of non-internationalized firms to 26% of those that export and/or participate in trade fairs and exhibitions abroad, until getting over 70% of those showing more complex forms of internationalization. The same report stands out from an analysis of the radical innovations of product, for which the percentage of innovative firms rises from 6.5% of the «national» companies to 37.1% of the internationalized ones, through 16.1% of exports.

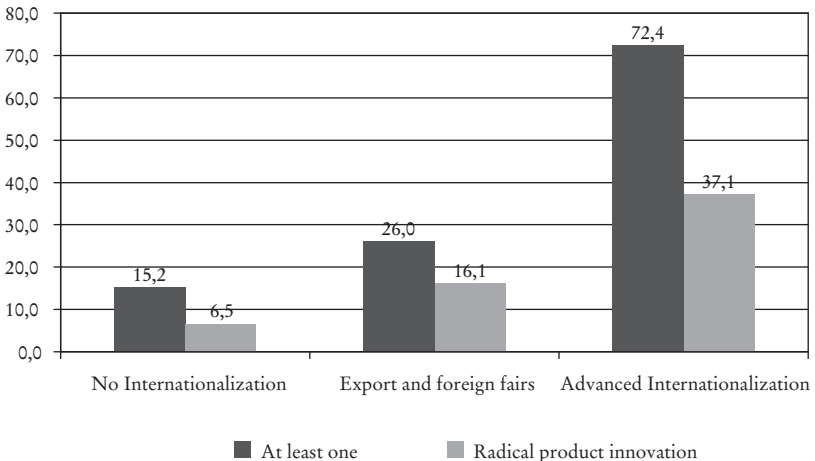
A cognitive effort has been specifically made to deepen those aspects linked to the crisis.

The report brings out that the international economic crisis had significant adverse effects<sup>2</sup>. If one considers the overall framework of France, Germany and Spain, the delay in customers payment (37%), the worsening of the relations with the banks (34.2%) and the contraction in sales (33.6%) are the areas of greatest suffering. Although not so widespread, however, the impact on the level of the prices (28.1%) seems very significant, the effect on employment is relatively less common, with an estimated 20.4% of the companies affected. The results for Italy appear to confirm these elements of difficulty.

The manufacturing sector shows more negative effects, with a critical situation that is relatively more pronounced with regard to the deteriorating credit conditions, the decrease in business volume and the decrease in employment, while the figure for the reduction of the prices is lower than the numbers of the service sector.

<sup>2</sup> Surveyed firms were asked to indicate the effects of the crisis through a 1-10 scale, where 1 represents a «no negative impact» and 10 «maximum negative impact». The percentages shown refer to companies that have indicated a value higher than 6.

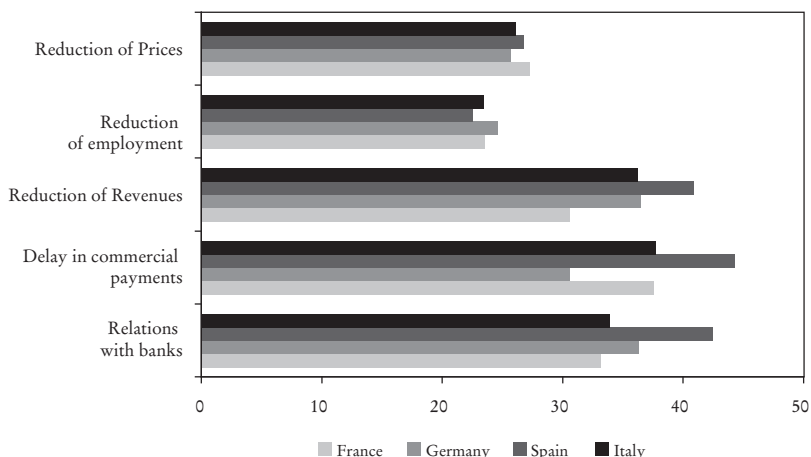
Figure 11. Innovations introduced, by degree of Internationalization in France, Germany and Spain. Industry, percentage.





Spain is by far the most affected country by the crisis. Figure 12 describes in detail the framework of the four countries considered in relation to the manufacturing division. Spanish companies seem to be the most affected in terms of delays in payment (44.3%), worsening of the conditions to get credit authorizations (42.5%) and decrease in turnover (40.9%), while the impact on the level of employment (22.6%) seems to have been less. For France and Germany there are values that basically do not deviate from the general average values, except for some specific elements: in Germany, micro and small companies report a sharp pain in relation to credit authorization (with values that are superior both to large German companies, and to the French counterparts, but still lower than the Spanish ones), compared to a problem primarily related to delays in customers payment for larger companies. In general all German businesses report a significant impact on business volume, while companies of intermediate size go into decline in employment. In France the most difficult situation seems to be identified in the business class of 10-49 employees, while large firms are those that reduced more the level of employment than the same ones in

Figure 12. Firms declaring a negative impact of the crisis on their activities by countries, industry, percentages.



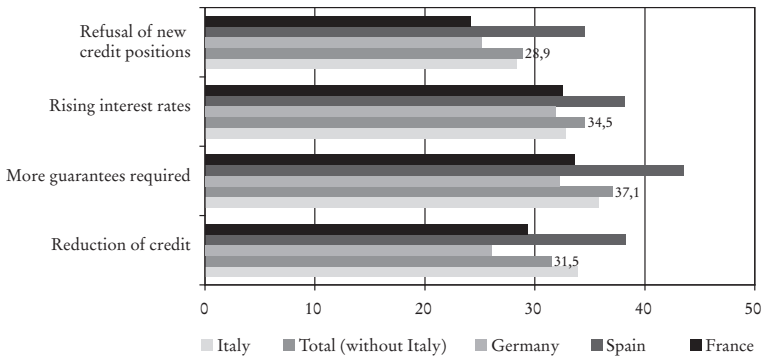
Spain and Germany. In general, France is the country where there is the most favourable situation talking about the authorization to credit.

The worsening of credit conditions seem to have occurred predominantly due to an increase in requested guarantees, an aspect indicated by 37.1% of the surveyed firms in France, Germany and Spain. 34.5% of these companies recorded an increase in interest rates charged by banks, while for 31.5% the crisis is a reduction of the amounts granted by financial institutions. The cases of rejected requests to open new positions appear to be less common, but it covered 29% of firms. From the dimensional point of view it is clear that the relations with banks deteriorated relatively more the small and very small firms.

The framework concerning each country confirms these signals and Spain appears as the most affected country by the crisis. Here the percentage of companies declaring a deterioration of the conditions to get credit authorizations is higher than that recorded in Germany and France, for all size classes and for all the items under consideration. In Italy the impact of the crisis concerning the access to credit is significant, with values that are systematically higher than those of French and German companies, but lower than the figures for Spain.

In addition to those issues related to the quantification of the companies that appear more affected by the effects of the crisis, it is ap-

Figure 13. Firms declaring a negative impact of the crisis on the relations with the banks, by countries, percentages.



appropriate to provide further evidences related to possible selective actions of the crisis itself. As already reported in the chapter dedicated to the investigation carried out in Italy, there is a prevailing view in accordance with such a deep economic crisis would work through a virtuous cycle of selecting «better» firms.

On the contrary, the evidence of the Italian sample survey reported how a very marked tightening of the economic and financial conditions related to credit authorizations took place for the most dynamic companies, namely those more active in carrying out growth strategies, which pass through investment programs in research and innovation areas.

Also among the three countries analyzed in this chapter there are signs that the crisis does not seem to have created mechanisms of selection that would reward necessarily more «dynamic» companies: in particular there is a wide range that invested in research, innovative products (with significant financial exposures) that shows obvious signs of distress.

What matters in this paper is to emphasize characters, ways of behavior and strategies of firms seeking to grow, as well as the presence of constraints. Even in dynamic categories, in fact, there are significant weaknesses (more pronounced during the crisis period) expressed by the financial weaknesses, the way of performing some qualifying functions and by the instability of important functions (especially R&D and Innovation, but also the Internationalization itself even if – the last one – grows also in difficult times of world trade).

The credit established itself as a very important and decisive issue especially towards the most dynamic companies: the share of companies that do not realize assets for the future, meaning that not only carry out research and Innovation but even that do not make investments for long periods and are part of the most «stagnant» groups, largely correspond to those who use little or nothing bank credit. Conversely, almost all those that are projected to mid-long term horizon hardly use credit. This, that is an obvious concept but necessary to quantifications, also makes them exposed, especially in times of trouble, to greater risks than those already consistent of the market for goods and services and make the most dynamic subjects vulnerable and exposed, increasing the responsibilities of the banking sector in its «real» functions.

The problem (and the usefulness of surveys such as those proposed) lives in quantifications: if «who competes» in open markets (if

one may use such a brief expression) represents a minority share of the total, we have (and we will continue to have) a discrepancy between the aggregate negative values of growth of European industry and the individual, interesting and dynamic aspects.

This opens up two questions: a cognitive and a policy one.

On the cognitive level, if the situation described is acceptable, we must understand many things against which the surveys here suggested offer only some clues. We need to deepen, for example, which kind of research is carried out by small companies, as it is carried out, which the specific problems and difficulties are, if there are information problems, specific problems of protection of rights mainly working with external parties, problems of coordination of functions and much more.

So the issue of internationalization assumes very different shapes and requires significantly different attitudes, if you go by the idea of a traditional multinational company to phenomena involving small enterprises -often structured in networks with different characteristics.

The issue of different policies, up against obvious needs by a fragile system that tries to act, up against risks of an adverse selection that would penalize the dynamic subjects, gets more complicated and it is difficult to put it lightly aside as it is usually done.

Next chapter is dedicated to policy, to the quantification of flows and to the operating procedures.

### III. Industrial policies in Europe

#### *The reference scenario*

As described in the introduction, this work depend on two important issues: on the one hand, the business surveys have shown some traits of the policy demand of firms analyzing, indirectly therefore, the limiting factors to the strategies of growth and factors of fragility that are often associated with activities commonly regarded as key factors in development (research, innovation, internationalization, etc.), on the other side it offers a study about the policies adopted in support of productive activities.

The issue of industrial policies is a focal point of the proposed reasoning: not many fields of economic policy seem to be characterized by the presence of a well entrenched ideological opposition, and by many preanalytical positions as this case.

On the one hand there are the advocates of government intervention who justify their position mainly on the need to correct the market failures (Ninni - Silva 1997), on the other there are those who consider the industrial policies as negative and unreformable (because they are directly responsible for the distortion of the mechanisms of competition while market failures, that could justify the policies, are largely outweighed by the failures of the state in attempts to intervene).

So these policies have to be eliminated or, at least, be regarded as a necessary evil: the suggestion is that they are kept to a minimum with a tendency to progressive euthanasia, in the meantime using the less involving mechanisms of the government deemed inappropriate and inadequate.

This point of view, generally widespread, assumes special significance in countries like Italy, characterized by a relative weakness of public administrations and a strong stickiness of procedures and administrative rules. Few efforts are conducted to understand the characteristics and problems and to improve their operation.

As a general approach we adopt the view expressed by Rodrik: «The remedy for government failures is not always a prohibition on government action. It can just as well be better rules and better policy guidance. Fiscal, education and health policies are constantly being rethought and revised. Why should industrial policy be any different?»<sup>1</sup>.

Beside these general considerations we add two more by utilitarian nature. The first one is a simple international comparison: if all the competitors, both the high-income countries and the so-called emerging ones, use this tool intensively, it doesn't seem reasonable that Member States, with a production system that has already endured tremendous competitive pressures and transformations, give up. A second issue concerns the fact that industrial policies are implemented, however, with reduced amounts but not insignificant, in the absence of strategies and correct approaches the futility of intervention becomes highly probable.

### *The resources*

We have to start showing the quantitative scenario linked to different policies. Since the State Aid (incompatible with the Treaty of Rome unless specific exceptions that are very common) were put under observation as a prohibited or not «appreciated» in Europe practice, the measures are constantly monitored by the Directorate-General that follows up the competition issues.

Over two decades, the absolute and relative situation of countries has changed with an alteration that records major changes (only for the four countries we analyzed), especially in Spain and Italy: the funds paid out for industry have been reduced substantially and have changed the relative position of the other reference countries.

The degree of financial support for enterprises in Italy is now the lowest in Europe even before the intervention aimed at limiting the effects of the crisis and probably the degree is less (there aren't systematic and complete quantification) than the U.S., where we are in the presence of massive interventions not only thanks to the public demand (military spending, research...), but also thanks to direct sup-

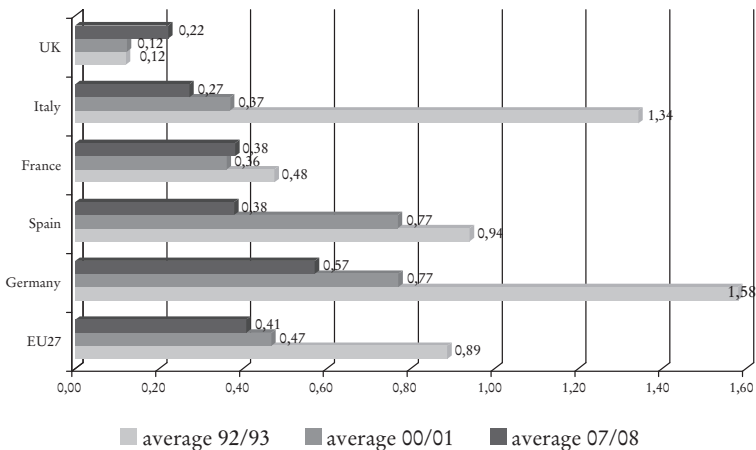
<sup>1</sup> D. Rodrik (<http://www.economist.com/debate/days/view/542>).

plies that are difficult to account, because often provided by individual states or counties<sup>2</sup>.

The policy actuated in European countries and United States in the presence of accentuation of the international competition of the new manufacturing countries even before the aggravation of the crisis (Bianchi - Labory 2006). In the picture below we present the aid amounts for Italy and for some European countries.

<sup>2</sup> The pragmatic recent phase, seems to set aside «ideological» issues to try to offer support for the specific needs of operators, even within the market rules and mechanism for protection of competition. After Reagan administration, strongly oriented in reducing the role of the state, in 2000 the industrial policy of the U.S., traditionally devoted to the tactic of the public demand that directly supports through huge flows of Research programs and the production of many large companies (from military to aerospace and biomedical), gave significant donations to national companies. Quantifications about it are not either particularly widespread or sistematic: the available estimates, conservative and referring to the early years of the decade, offer a framework nearby 50 billion dollars in assistance from the Federal Government and States, as well as American Competitiveness Initiative promoted in 2006 by President Bush refers to an additional work of more than 136 billions dollars in ten years (in large part for private parties). In Research and Development of enterprises the estimates indicate a level of subsidy close to 10% of the cost for SMEs and equal to about 15% for Large Firms with regard to federal expenditures (to which must be added the actions of State and Counties). Fisher - Peters 1998.

Figure 1. Total State aid to industry and services as % of Gdp (financial services sector excluded), 2008.



Source: Met on Eu data (Dg Competition).

On the other hand, the demand for public policies throughout the first decade of the 2000s expanded and took different characters: at the beginning we remembered some great phenomena linked to the accentuation of globalization, the substantial technological changes and the changes of the «geography» of the world demand. The extraordinary effort to adapt that was asked to the enterprises, in particular the small and medium ones, prompted many governments to increase assistance. The size of the State aid followed different routes in Europe.

The total flow of resources devoted to State aid in the Eu grew, albeit slightly, in that period.

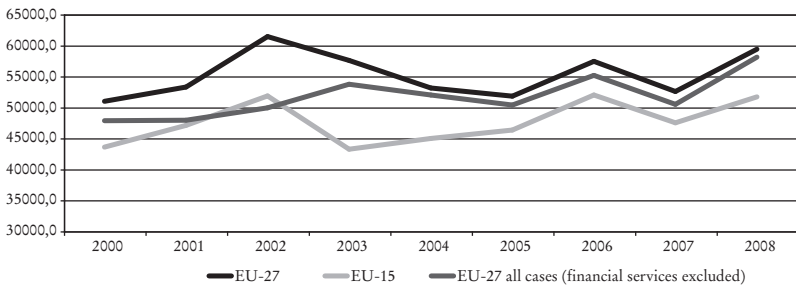
If we consider only the four countries taken into account, however, we can record appreciable declines in three out of four cases (excluding crisis measures), especially France is sharply growing, increasing the rate of aids to Gdp from 0.47% to 0.66% in four years. At the relatively modest decline of the German share it is accompanied by a strong decline of Spain (especially until 2004) and Italy (in the whole period).

Also considering crisis measures would greatly accentuate the dimension of the phenomenon: in 2008 the funds paid out in Germany would pass from €15 to 66 billion, in France the scale of the intervention would pass from €12.8 to 38 billion, an increase held down in Spain (€4.6-5.5 billion). In Italy there are no interventions of this kind linked to the crisis.

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Figure 2. Total State aid to industry and services as % of Gdp (crisis measures excluded), 2000-2008, million euros.

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Source: Met on Eu data (Dg Competition).



The graph below shows a detail by Member States of the money allocated in 2008, as a percentage of Gdp, suggesting two scenarios depending on whether or not we consider crisis interventions.

Policies, excluding crisis measures, get a high intensity in France and Germany recording values respectively of 0.66 and 0.61% of Gross Domestic Product, compared to 0.45% that is observed for the aggregate Eu-15. On the other hand Spain is placed below the last average value, with an incidence of 0.42% of Gdp, while the flows of aid detected in Italy seems to be very modest, equal to 0.29%.

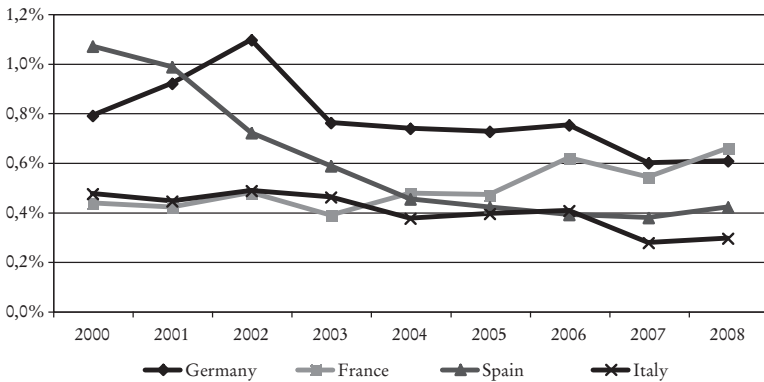
If you consider all types of measures, including those interventions against the crisis, it is possible to observe in Germany an incidence on Gdp equal to 2.66%, compared with an average 2.32% in the 15 Eu member states. The percentage in France is equal to 1.97%, while in Spain interventions dedicated to crisis are modest with a differential equal to 0.09% compared to a scenario without intervention against the crisis. Italy, finally, didn't record crisis measures at all.

One of the appropriate way to perform comparative analysis among the countries is to analyze the comparatively the way of interventions used in the different member states. There are no comparable databases covering the world of policies unless the one used by Dg Competition of the European Commission offices. A first framework

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Figure 3. State Aid to industry and services in 4 Member States as % of Gdp (crisis measures excluded).

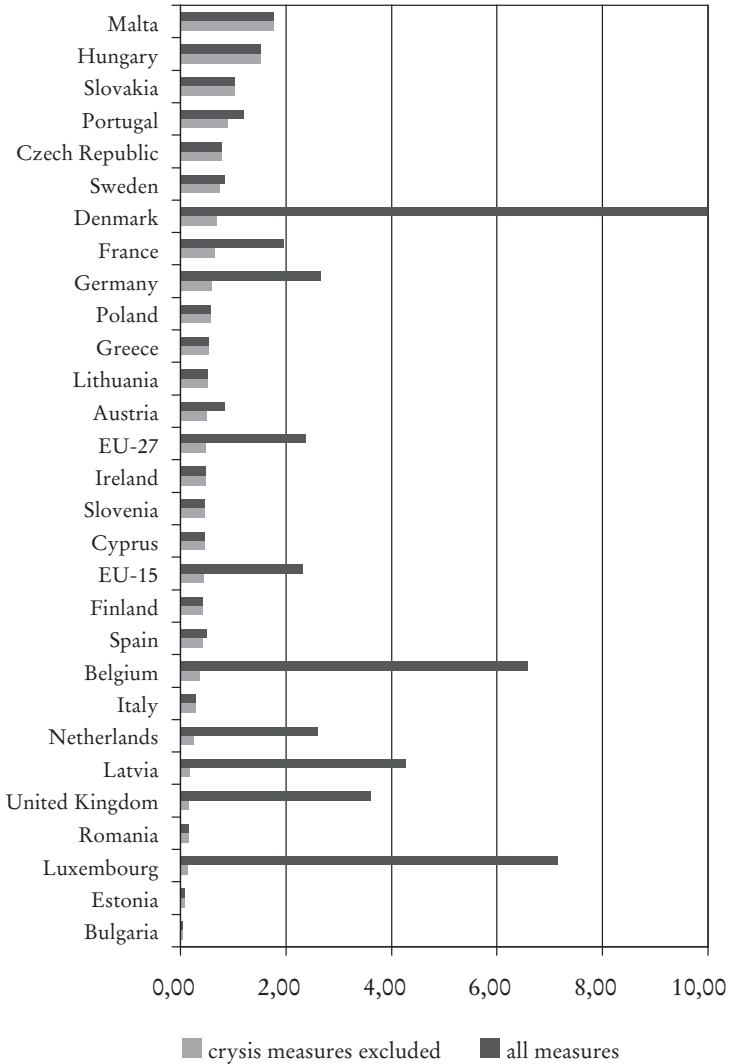
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Source: Met on Eu data (Dg Competition).

Figure 4. Total State aid to industry and services as % of Gdp, 2008, with and without crisis measures.



.Source: Met on Eu data (Dg Competition).

is provided by the type of financial/tax instrument, as represented by the following table.

We can notice as the capital grant, in its direct form or through tax exemptions, is the main tool and even with some differences between countries represents about 90% of total expenditure<sup>3</sup>. In detail, considering the aggregate 15 Eu member states, 50.6% of total resources are provided through capital grants, and 43.9% through tax exemptions. In Italy there is a relative greater weight of the capital subsidies, representing 76.5% of total resources, compared to 57.5% in Spain. In France and Germany just over half of total payments is made through tax deductions. In all four countries, capital grants and tax exemptions are more than 90% of total resources.

<sup>3</sup> The values in the table are expressed in Gross Grant Equivalent (Gge) through appropriate financial transformations. The goal is to represent the aid amount in order to achieve comparability between different types of aid instruments. For soft loans a proxy of 15% of the total amount lent by the government is estimated, while for guarantees the aid element is estimated to be 10% of the nominal value.

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Table 1. State aid for manufacturing and services by type of aid instrument (crisis measures excluded), 2008.

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	Capital grant	Tax exemptions	Equity participations	Interest subs.	Tax deferral	Guarantees
Belgium	71,7%	24,0%	0,0%	4,3%	0,0%	0,0%
Denmark	95,6%	4,1%	0,0%	0,3%	0,0%	0,0%
Germany	42,6%	51,4%	0,3%	3,5%	0,0%	2,2%
Ireland	46,6%	53,0%	0,0%	0,4%	0,0%	0,0%
Greece	56,7%	9,2%	0,0%	0,0%	0,0%	34,2%
Spain	57,5%	35,3%	0,0%	7,1%	0,0%	0,0%
France	44,8%	52,1%	0,0%	2,9%	0,0%	0,2%
Italy	76,5%	14,8%	0,1%	8,6%	0,0%	0,0%
Hungary	51,7%	43,2%	0,1%	0,5%	0,0%	4,6%
Netherlands	79,1%	16,7%	0,3%	0,0%	2,5%	1,4%
Austria	92,2%	1,0%	0,0%	6,3%	0,0%	0,5%
Poland	69,1%	22,8%	7,3%	0,6%	0,0%	0,2%
Portugal	5,1%	89,5%	0,0%	4,3%	1,0%	0,0%
Finland	59,9%	29,6%	2,0%	8,2%	0,0%	0,2%
United Kingdom	45,0%	53,9%	1,1%	0,0%	0,0%	0,0%
Eu-27	51,7%	42,8%	0,5%	3,3%	0,1%	1,6%
Eu-15	50,6%	43,9%	0,2%	3,6%	0,1%	1,6%
Eu-12	61,3%	33,2%	2,8%	0,5%	0,1%	2,2%

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Source: Met on Eu data (Dg Competition).

Other kinds of facilitation have therefore a relatively marginal weight. In Italy and Spain there is a certain distribution of soft loans and interest subsidies for a share equal to respectively 7.1 and 8.6%. Guarantees weigh on the average for only 1.6% of total expenditure; Germany is the only country among the four considered that records a share above the Eu average, with a rate of 2.2%.

### *The relevant issues for policies analysis*

In general, the dominant position with regards to Industrial policies in Italy (and Europe)<sup>4</sup> is based on arguments inspired by good principles with very simple settings: no need to have distorting and harmful interventions such as those for industry, while it is essential to have a lean and efficient State capable of guaranteeing the access to public goods in a widespread manner and with a high quality of services.

In parallel to the arguments and the already recalled public positions, there are continue interventions in the field of industrial policies – with neither very high amounts, but nor entirely negligible – without paying particular attention neither to the way they are carried out and nor to the opportunities of improvement.

Following such a path means that the entire «toolbox» of industrial policy is going to be emptied and there is no convincing and articulate ideas on what should be the strategy to follow: either follow occasional logics or emergencies without an overall design.

The purpose of this paper is to point out some important aspects that deserve analysis and insights. There is no need then either to ask if it is necessary to adopt certain measures of policy, or to think about how to make it possible and which addresses to have. The same applies when policies are made by all the international competitors and in the presence of an effective space for public policies determined by needs and by a request of state intervention on the part of many dynamic players who cannot find an adequate satisfaction in private market.

Finally it should be noted that the paradoxical aspect of the debate is just related to the fact that supporting the inutility of industrial

<sup>4</sup> The most argued and widespread representation is present in a comprehensive document that brings together numerous research, Bank of Italy 2009.

policies became the main support (albeit indirectly) to the inertia in changing strategies and methods of public action.

The contradictions of the policy are expanded when you consider that a now prevailing part of aid policies to businesses is now focused on the aid to private Research and the introduction of innovations. These are shared objectives and generally accepted that use instruments mostly derived from the industrial policy.

The fact of no adequately analyzing the operating systems and instruments for the operation of policies make new proposals weak.

The terms the issue of enterprises policies deserves to be examined, moreover, are different and involve several, complicated (and even of little theoretical appeal) technical issues.

The point we will try to develop is that it would be particularly useful to base a general argument that deepens the way of perceiving the policy demand, the instruments used and the characteristics that determine successes and failures.

These issues can be summarized in four points which will be subject to specific analysis:

- The actual numbers, the tools and the implicit objective of the policies implemented.
- Procedures and technical equipment: how to learn from mistakes.
- Evaluation of effectiveness.
- The financial stability and the proper sizing of programs.

*Numbers.* The total disbursements to the industrial sector are regularly monitored by the Eu, however, some depth in the member countries could enable a more accurate verification. The experience of Italy (Rapporto Met) shows the usefulness of an independent review in order to analyze in detail what has been actually done, the characteristics and problems.

The analysis of each single tool, technique and resource seems an essential step to understand how politics actually work with the possibility of joint resources depending on priority targets.

The matter of the numbers is extremely delicate: if we consider the aid granted and not those actually provided, the values can be very different and report high figures. This is due to a systematic deviation between the values of entitlement and delivery (and not just to a time

lag), but most of all it is wrong to consider the values of government. These evaluate in the same way subsidized loans and capital grants, guarantee funds and interest subsidies, in addition to other forms of aid. The questions may seem unnecessarily technical, but it is not because the differences between a way of measuring or the other can lead to substantial changes. The only common way to make those values referring to different instruments aggregable is defined in the Eu and it is based on the calculation of the grant. The reason why even in the official and institutional environments by qualified scholars will continue to use misleading numbers is unclear.

But then we do not have to overlook another aspect, neglected and even forgotten by all beneficiary companies: the contribution is «gross» in almost all cases. These amounts are taxable incomes of the companies on which taxes are paid. The net benefit can be much lower and in order to further reduce the burden on the state and to make companies disappointed compared to expectations.

*Procedures and technicalities.* The operating mechanisms of the measures (ie. access procedures, including selection, the type of costs allowed, the technical delivery mechanisms, timing) are never analyzed in depth, although these represent the technical way in which the policies measures produce benefits for enterprises. The operation of these mechanisms often reduce drastically the benefit of the companies and can also direct the action towards different goals than those set forth herein. Paying attention to these issues seems a precondition for any future development. In the text you have some significant schematization, about it would be appropriate to carry out a board job for which the governments should let all possible data available and express themselves the greatest interest.

It would seem that there is not just a problem of resources, but also a problem concerning the procedures and methods of intervention, if you compete on scarce resources without a proper financial planning and rules, the problems and distortions may even grow to lower costs and do not shrink.

*The evaluation.* The evaluation of the effectiveness of policies is of paramount and general importance for all public projects.

In the field of industrial policies, evaluation studies assumed a considerable importance and influence on the political and journalistic

debate (perhaps because those often confirmed conventional wisdom and established positions). The applications have been different and often of high quality and rigorous analytical approach.

The evaluative methodologies (especially if focused on one type of analysis), also record weaknesses that would advise not to rely on them as the only element of the proceedings. The enrichment of the analysis would seem something to pursue with care and attention.

But the most problematic point arising from the work available is the response you get from this type of analysis. This, in fact, is directed to say, at best, if an entire type of action has produced results or not. For a useful assessment should also indicate in which direction it is necessary to move to improve the results and where the errors of selection, management and operational mechanisms are. In essence we need to explain the reasons why some targets have not been achieved.

Evaluation efforts, in this as in other policies, should be strongly enhanced, but the use of rigid schemes defined through administrative ways is a source of weakness.

Some recent proposals to revise the Cohesion policies of the European Union gave a prominent role to evaluation processes, highlighting the need to incorporate the same assessment already in the design of policy and run it in parallel with public policies whom they relate to (thus starting what is called a «forward-looking assessment»). This is a potentially interesting process – though of very complex management – that should be programmed and tested in practice (the difficulties for the industrial policies are non-negligible and even higher compared to other development policies). One worrying aspect appears: the explicit and exclusive reference to an unique methodology, referring to counterfactual analytical structure.

It is necessary to indicate the argument that we want to support: when the works of analysis pass from being a self-chosen field of research by researchers and experts and these are established as administrative/institutional patterns or mainly as a basis for policies choices, we have to pay a lot of attention. The main risk, in the opinion of the writer, is to have an inevitably partial single model of analysis (which shows itself big methodological and empirical problems): the strong limits and the ability of each methodology to answer only some of the essential questions concerning economic policy, make necessary appropriate broad-spectrum approaches with an

expanded range of tools apt to consider the many aspects of complex policies.

A multi-instrumentalist and multi-objective policy should find the normal way of analysis in the multi-criteria models to support decision makers. Although these are methods not very common in specific literature (Rostirolla - Brancati 2003), those have considerable advantages if properly treated and are able to manage and bring coherence to information and different methods that develop individual aspects.

The scheme should be a reformulation of the evaluative problem when the grid reference is given – among other things – by the relationships between instruments and objectives where we place (alongside the best possible counterfactual analysis in the different cases) different sources of information oriented to the reduction of the limits described and in the first place the analysis of the consistency of the various procedural steps according to the objectives and the loss of value of contributions and policies because of the lack of application.

If you want the evaluations could actually be useful, it is necessary to cover several functions and assume the problems of accurate and timely information in order to improve public policies often mismanaged in the past and for which the evaluation problem must also be a problem of identifying the limits and failures and not just debating about the elimination or maintenance of obsolete systems.

*Financial stability and sizing.* Policies must be likely to affect the firms choices. Thus, systems must be relatively stable and well-defined so that those can be considered within the functions of behavior of the companies themselves. In the absence of certainty about resources, rules and ways of access, all reasoning about the potential effectiveness of the instruments is even unnecessary. So also the financial dimension must be consistent with the objectives and with the audience of potential users: too often potentially interesting measures are planned whose budget is meaningless and there is no possibility to affect such a significant phenomenon.

Complex problems require appropriate and structured responses in general, thinking that everything is simple and can be reduced to a few basic tips is a way of trivializing the issues and does not help to understand and solve those. It is equally certain, however, that once the industrial policy «can be utilized» a careful review of mechanisms, rules and processes would seem essential.



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